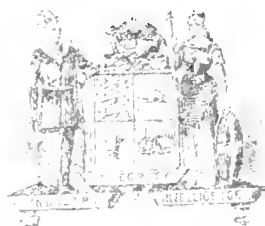


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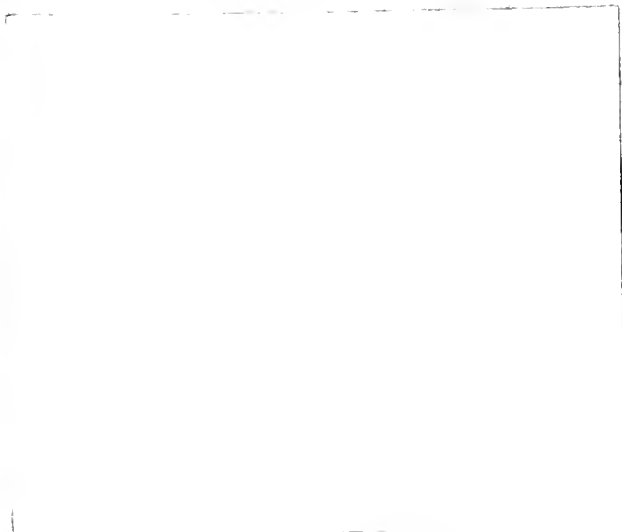


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THE CANADIAN HORTICULTURIST

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No. 1

The Apple Scab--How the Fungus Spreads*

L. Caesar, Provincial Entomologist, Ontario

APPLÉ scab, or Fungus as it is sometimes called, is by far the most destructive apple disease found in Ontario. It occurs in every part of the province where the apple grows. It is not the same disease as the Pear Scab, so common on Flemish Beauty and some other varieties of pears, but is very closely related. Its presence is of course most familiar to us in the form of the black spots on the fruit, the skin of the apple always being destroyed beneath these spots.

It attacks the leaves just about as readily as the fruit. This fact is perhaps not so well known to fruit growers. On the leaves it causes at first small nearly circular areas about one-fourth of an inch in diameter, and of an olive color. After a while the affected parts often become somewhat elevated making the surface of the leaf irregular or more or less crinkled. Before long these spots die. Sometimes there are numerous spots on the leaves. I have seen leaves of crab apple trees so badly attacked on blade and petiole or stem that most of them fall off by about the first of July.

*Extract from an address delivered at the recent annual convention of the Ontario Fruit Growers' Association.

A fresh set soon took their place. Occasionally but not ordinarily the tender twigs themselves are attacked.

LOSS CAUSED BY THE DISEASE

Loss comes in the following ways:

First: Scabby fruit must be rejected, as culls at any rate can never go as number one.

Second: In moist warm autumns the scabby areas on apples in a barrel will soon become attacked by a whitish or pinkish mould, known as pink rot. This makes the apple not only unsightly but unmarketable. Greenings are especially subject to the rot. Even apart from this disease scabby apples will not keep so well as clean apples.

Third: The scab fungus commonly attacks the stems of the fruit while it is still small and causes large numbers to fall. Sometimes it is evidently in a large degree responsible for the failure of a crop.

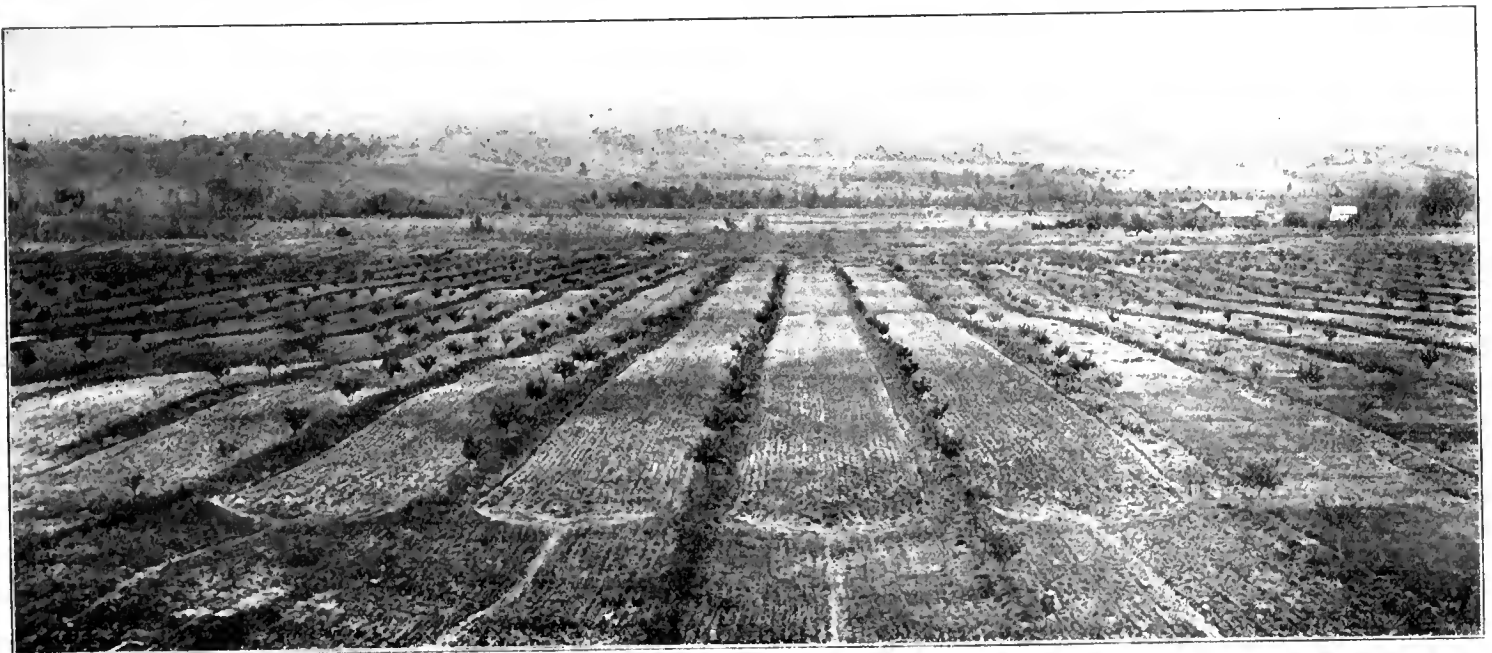
Fourth: By attacking the leaves and killing areas on these it not only interferes with the power of a tree to manufacture food (the food of a tree is manufactured chiefly in the green leaves) but also permits spray injury around the areas where the protecting skin has

been destroyed. Consequently the vigor of a tree may be greatly lessened by these combined injuries to the leaves. The following year the chances of a good crop are, therefore, greatly lessened through the failure of a tree to form fruit buds. This is one of the reasons why well sprayed orchards regularly yield larger crops than unsprayed and are healthier unless injured by over cultivation or over fertilizing and consequent winter injury.

LIFE HISTORY OF THE FUNGUS

The fungus which causes apple scab is a very small microscopic plant which unlike green plants cannot manufacture its own food but feeds entirely upon other plants, or in other words is a parasite. It passes the winter almost entirely upon the old diseased dead leaves on the ground beneath the tree or wherever they may be blown by the wind. Occasionally it may also winter on the twigs. In the spring, about the time the leaves are expanding, the diseased spots on the dead leaves by a peculiar device begin to shoot out into the air in moist weather tiny little spores which are carried by the wind especially to the lower leaves.

These spores correspond to seeds, and



A Portion of an Eighty-Acre Orchard in the Trenton District of Ontario

The possibilities of the North Shore of Lake Ontario as an apple producing section are only beginning to become recognized. This orchard, owned by W. A. Fraser, Trenton, Ont., contains 3,200 trees, the oldest of which were planted four years ago. In time this will be one of the great apple districts of the continent.



Young Trees Girdled by Rabbits

—Photo by R. S. Duncan, B.S.A., Port Hope, Ont.

like seeds they cannot germinate unless they get an abundance of moisture; hence if the days are bright and sunny they will not grow but if rain falls and does not dry off for about twelve or eighteen hours they will germinate, and begin to enter the leaves. Once the germ tube has worked through the skin of the leaf it grows rapidly and forms many little threads or rootlets as we may call them. From these in a few days a host of little threads burst up through the skin and keep producing on their tips crops of countless spores. These are constantly being blown by the wind from leaf to leaf and everywhere throughout the orchard, and get also on the stems of the young fruits, and on the fruits themselves. Here, again, if given sufficient moisture, they will germinate and produce scabby areas on all these places.

It is while the fruit and leaves are still small that the fungus spreads most. Once the fruit is three quarters of an inch in size it is not nearly so subject to attack. This is probably due to two reasons: First, the skin has been growing thicker and so is more difficult for the fungus to penetrate. Second, the weather is warmer and brighter, the nights are shorter and so there is seldom a sufficiently prolonged period of moisture for the spores to germinate. As to the time necessary for this, I have had them in the laboratory at a temperature of about sixty degrees F. germinate in between twelve and eighteen hours; at about fifty degrees they were a little longer, and outside at a temperature varying from a

little below freezing to forty degrees F. they had just begun to germinate in forty-eight hours.

It is probable that the germ tube soon enters the apple after beginning to grow. Once it enters it cannot be killed by any spray, hence spraying is to cover leaves and fruit and prevent spores from germinating. From about the middle or end of June until the last week in August there is seldom any noticeable increase in the amount of scab, but with the return of longer nights and lower temperatures, if there is an abundance of continuous wet or foggy weather, as happened in the fall of 1912, we may look for a fresh outbreak of the disease, and should spray to prevent it. The inky spot or sooty fungus of the fruit is also favored by this kind of weather. Leaves are apparently even more subject to this late attack than the fruit and hence there are always plenty of these diseased to carry the fungus through the winter.

Methods of Cultivation

E. S. Archibald, Wolfville, N. S.

My experience with a part of my orchard for six or seven years in sod is that it gave returns both in quantity and quality equal to any other parts of the orchard of same variety of trees (Gravensteins.) I applied the same kinds and quantities of fertilizers as to the part of the orchard that was cultivated, and whatever grew on the ground I mowed and left as a mulch. I am strongly inclined to put one-half of the older orchard under this treatment from now on and test it as against that of annual cultivation and cover crop.

My feeling is that with heavy clay land not well drained it would not be good but with dry, gravelly or sandy land it might be better than our present method. The mowing of grass or weeds and application of fertilizer will keep a mulch that seems to suit the trees all right. I am not writing as an authority on this matter but have noted for many years trees that have no cultivation (in orchards not my own) and found them doing as well and sometimes better than where cultivation was thorough. Of course fertilizers of some kinds were annually applied.

I would not dare recommend sod culture as a general practice throughout the Annapolis Valley, for many farmers would rake up the grass mown and haul it to the barn for winter feed without putting anything back for mulch. I notice an up-to-date neighbor orchardist is treating his old orchard by alternate plowing and clover. That is, one side of the trees growing clover and the other side cultivated and clover sown for the next year's growth. It means half the orchard cultivated one year and the other half the next. This will enrich the



A Young Tree in Mr. G. W. Noble's Orchard Wrapped with Tar Paper to Prevent Injury by Rabbits

—Photo by R. S. Duncan, B.S.A., Port Hope, Ont.

ground, but is probably hard on the feeding roots to be cut off the second year.

When to Prune

When is the best season to prune fruit trees?—W.L.K.

A heavy pruning of either young or old trees is conducive to wood growth, rather than fruit bearing, no matter at what season of the year the pruning is done. A pinching back of the growing shoots during the summer months is conducive to fruit bearing. Care should be taken not to pinch back too severely as severe heading in is equivalent to pruning and stimulates wood growth. If trees are making from twelve to eighteen inches of terminal growth, one-quarter or one-third of this may be taken off. This heading in tends to produce short twigs or branches in the centre of the top and with all fruits which bear from spurs this is the first requisite to fruitfulness. As a rule we should not expect results from pruning during the season when it is done, but the following year at the earliest. The German practice of bending the end of the shoot back and twisting it around the main branch lower down is probably better than pinching, as it checks the growth without removing the leaves.

To induce fruitfulness in mature

trees the practice of girdling is well known and in some cases advisable. Removing a circle of bark two-thirds of an inch wide right around the branch

early in the spring, thus permitting the sap to run up in the tree but preventing its return, will produce heavy bearing. Of course this practice cannot be fol-

lowed too closely or one might ruin the tree. The fruit buds that determine the crops of the succeeding year are formed the spring of the year previous.

Wrapped and Unwrapped Fruit in Boxes

E. T. Palmer, Assistant Horticulturist, Ontario Department of Agriculture

THE question of wrapping is attracting more and more attention each year from eastern growers, and rightly so. In the western states and British Columbia practically all number one fruit is wrapped. Conditions, however, are somewhat different in Ontario, so that wrapping should be governed by the variety of apples and the market. Western growers are building up a high-class market with this high-class product. At present, however, it is doubtful if it would pay the ordinary grower who has no special market for his fruit.

Briefly, the advantages of wrapping are as follows:

First: It improves the keeping quality by preventing disease spreading from fruit to fruit.

Second: Apart from the control of disease, it improves the keeping quality, in that wrapped fruit may be firm and in prime condition several weeks after unwrapped fruit has become mealy from over-ripeness.

Third: It protects the fruit from sudden changes of temperature and absorbs surplus moisture.

Fourth: It makes an elastic but firm pack, much less liable to shift than unwrapped fruit. This applies particularly to easily bruised varieties; it prolongs their life and good appearance.

Fifth: It gives a more finished appearance to the package. It indicates a high-grade product and the fruit finds a readier sale and a higher price in many markets.

Sixth: Once the knack of wrapping has been acquired, it is much easier in almost every way to pack wrapped fruit, as any packer skilled in both methods will testify.

WRAPPED VS UNWRAPPED

The main disadvantage of wrapping is that in cases where the fruit is not cooled at the time of packing, the wrapper prevents rapid cooling. There may be a difference of ten degrees F. at the end of one day between a box of unwrapped fruit and one wrapped. Wrapping, however, has so many advantages that this one disadvantage may be practically disregarded.

It seems to be the general opinion of those unfamiliar with wrapping that it adds to the cost of packing. As a matter of fact the cost of the paper is almost saved by the weight of fruit displaced by it. Further, experienced packers can do as quick or even quicker work wrapping than without.

Again, it is easier to procure the proper bulge with wrapping, as the firmness of the pack can be varied considerably from the middle of the box to the ends without injuring the pack in any way.

By packing the apples closer in the centre the pockets between the apples are closed up more. The next layer then will not sink so deep, and therefore builds up the centre. The ends being left a little looser, the pockets are opened a little more and the apples drop in further, and therefore do not build up so high. Practice alone will give the know-

ledge of just how tight to pack the centre or how loose to pack the ends.

As this difference in firmness cannot be made with unwrapped fruit it is considerably harder to pack it and have as nicely finished a box. Again, as already noted, there is more latitude in the style of pack when wrapping the fruit.

Only number one fruit and possibly number two of the winter varieties should be wrapped. Usually all fruit intended for distant markets as Great Britain should be wrapped unless the market calls for unwrapped fruit, as the



A Well Loaded British Columbia Peach Tree

(Photo by G. H. E. Hudson, Kelowna).



A Duchess Tree After Thinning

This tree was in one of the demonstration orchards in Durham county, Ont., where experiments in thinning showed a profit of over four dollars a tree in favor of thinning.

Ten by ten inches for four tier and the smaller three and a half tier.

Ten by twelve inches for very large fruit.

These sizes should be adhered to fairly closely, as fruit packed with too large a size paper gives a box light in weight, and also gives the consumer the impression that the price of the fruit is too high. Using paper too small is also objectionable in that a great deal of the advantage of wrapping is lost. It also increases the labor of wrapping and packing to a considerable extent, as does also paper that is too large.

Unstenciled Duplex costs about twelve cents per ream f.o.b. shipping point in small quantities. For larger quantities the price is correspondingly less. A ream contains five hundred sheets, which will pack about three boxes of apples, making the cost per box four cents.

TRAY FOR WRAPPING PAPER

For convenience and speed in wrapping, a tray for holding the paper is very necessary. They are made so that they can be placed on the side of the packing box.

To make one an applebox-end is usually taken and strips which project over the edge about two inches are nailed on three sides of it. On the under side a three cornered block is nailed so that one end of it is even with the open side of the tray. This forms a bracket or brace for supporting the tray when in position on the box.

Two long nails are driven into the open side of the tray, leaving about three-fourths of an inch of their length out. The heads are then cut off and the nails bent down over a piece of iron or wood a trifle thicker than the side of the box. This forms hooks for hanging the tray on to the packing box.

METHOD OF WRAPPING

Practically no time is lost in the operation of wrapping as a skilled packer picks up the apples with his right hand while he reaches for the paper with the left. To aid in picking up the paper it is advisable to use a rubber stole on the thumb or first finger. The apple is placed in the centre of the paper in the left hand with the side or end of the fruit down which is to be packed uppermost. The wrap is then made with both hands by a couple of quick half-turns of the wrist, the last of which brings the smooth surface up and the bunch of paper on the bottom. An expert packer should wrap and pack fifty to one hundred boxes a day, depending upon the size and grading of the fruit.

Any permanent organization, with a large quantity of fruit to sell every year, under a uniform brand which will be a guarantee of excellence, can make an impression on the market.—Prof. Crow.

Summer Pruning

When asked recently for his opinion concerning the summer pruning of fruit trees, Prof. C. L. Lewis, of the Oregon Agricultural College, replied as follows: "I believe with trees three to ten years old summer pruning, if properly done, will have a very good influence in keeping up certain characteristics and tend to bring the trees into bearing earlier. Certain trees, like the Northern Spy, have been materially benefitted. I have seen indications all over the coast of its being a hindrance. In some cases the work has been overdone and I feel that the trees have been damaged. The tendency in mature and bearing trees is to overdo. I have seen men cut off branches six inches in diameter. I have watched a number of orchards, two or three years old, and I fail to see any benefit from such work, in fact the effect, if anything, was injurious to the trees.

"Of course summer pruning can be done in two ways. One is to help shape the tree, correct the habit of growth, and perhaps time can be gained in that way, and this type can be done any time you desire. I believe, however, it should be done moderately and that one should work with the idea of avoiding undesirable growth and development by early pinching and moderate cutting. I believe in doing considerable work of this kind with trees from three years up, and perhaps two-year-old trees.

"The second type of summer pruning is to induce fruitfulness. You can increase the accumulation of tissues around the buds and around the branches by summer pruning, but whether this will result in more fruitfulness and stronger growth, is an open question. Probably it would, like everything else, be influenced by the general treatment of the soil, the drainage it is getting, any artificial stimulation it is receiving, and similar factors. This second pruning for fruit has to be done when the trees are just in the right condition of activity. If the trees are growing too strongly the results are not secured."

Six feet by three feet apart is not too much space to devote to raspberries. We find growing them in hills about six canes to a hill is the most profitable way to have them.—W. J. Kerr, Ottawa, Ont.

Mildew, the great enemy of the English gooseberry in this country, results from planting in sandy soil. The roots of gooseberry bushes run close to the surface and consequently they become scorched. They should be planted in soil that won't heat, such as heavy clay loam. Mulch for the surface will also overcome it.—R. B. Whyte, Ottawa, Ont.

fruit carries much better. Wrap, too, for markets where there is competition with wrapped fruit from other districts.

In wrapped fruit the top of the box should be packed last, while in unwrapped fruit the top is packed first. Packing the top of wrapped fruit first is a very poor method and should be discouraged, as the smooth side of the wrapped fruit has to be turned down, and the loose ends sticking up are very confusing to the packer, making his work slower.

WRAPPING PAPER

The wrapping paper most commonly used is called the "Duplex," from the fact that one side is calendered and the other rough. This latter side is turned to the fruits as it more readily absorbs any surplus moisture. A white colored wrapper is decidedly preferable as it looks cleaner and neater than any others.

Having paper with the name or trade mark of the grower or association is an excellent method of advertising. It is not necessary to wrap all the apples in such paper, but if the outside layers are done and the trade mark is neat it adds much to the attractiveness of the package.

The paper is cut into several sizes to correspond with the different sizes of apples. The following figures give a good idea of the sizes most commonly in use:

Eight by eight inches, for five-tier and the smaller four and a half tier fruit.

Eight by nine inches and eight by ten for four and a half tier.

A Park System for Small Towns*

C. E. Chambers, Park Commissioner, Toronto, Ont.

NO town, however small, can afford to grow up without providing suitably for the parks and open spaces it will surely need if its beautification and healthfulness are to receive proper consideration. In practically all of our

requirements when development has probably extended its boundaries far into the environs. In the preparation of the plan the location and distribution of the park areas should be given careful thought, to the end that each section or district

pleasure grounds. Wooded areas adjoining the town will, of course, be conserved, and park lands will be secured within its probable boundaries, as financial means will permit.

THE PARK SITE

In selecting a park site attention should be particularly paid to the matter of its boundaries. It is a somewhat common error to neglect this. Where necessary to a complete picture, the whole of a hillside should be secured, the whole of a body of water, or the whole of a glen or ravine. The appearance of many parks is marred by an impression of incompleteness, brought about by the unnatural restriction and limitation of their boundaries. The park within the town will necessarily be bounded by streets, but on no account should its boundaries be built upon. Back yards as a frame to a park should not be tolerated. The park should be an aid to the town's beauty, instead of being concealed in the rear of buildings, however desirable.

DEVELOPMENT OF SITE

The development of the park site involves a serious responsibility. It calls for the preservation of natural beauty, and the creation of that which should add its share of charm to the town's attractiveness. The location and topography of the site will, of course, govern to a considerable degree the treatment to be accorded it, but great care must be exercised in this, lest, in too great straining for ornamentation, the natural advantages which nearly every well-chosen area possesses be lost in the effort to improve, and an artificial and undesirable result be substituted therefor.



A Playground Festival, Elizabeth St. Playgrounds, Toronto

older cities we have examples of how rapid development and attending congestion have crowded out the open spaces which should have been preserved for the creation and enjoyment of the people. Railways and other undesirable features have been allowed to thrust themselves upon the lake or river front, despoiling it for ever of its natural charm and beauty, and robbing the city or town of its chief attractiveness, and areas which at one time possessed infinite possibilities in scenic value are pre-empted and needlessly destroyed for commercial purposes. There is no excuse for such conditions obtaining in the growing town if the lesson of properly planning for its development is learned in due season. With the wide world furnishing, as it does, a school in which this knowledge may be freely had there is no excuse for neglect to learn this lesson.

PREPARATION OF PLAN

The early preparation of a comprehensive plan is the first step in the conservation of the features of natural beauty with which a town may be endowed or surrounded, and for the setting apart of areas for park and recreation purposes and the establishment of 'boulevards, playgrounds, squares, or open spaces. This plan will have largely in mind not only the town's needs of to-day, as evidenced within its present limits, but the

may have its proper complement of parks, squares, recreation grounds, and playgrounds, properly related in their location to the purposes to be served by them.

The most striking scenery of a district will naturally be reserved for park purposes, and especially the banks of a stream or the water front—where such exist. Waste or marshy areas may be profitably reclaimed and converted into



Recreation Area, Bellwoods Park, Toronto, Ont.

*An address delivered at the recent annual convention of the Ontario Horticultural Association.



A Decorated Square, Exhibition Park, Toronto

Drives and pathways will be necessary to lead from point to point. These should be so arranged as to disclose along the way the most striking of a park's scenery and lead to points of greatest vantage. It is particularly essential that the roadways be good, if the popularity of the park is to be developed. Let at least the foundation for this be laid in their proper location, while the work of improving them is undertaken as resources will allow.

STORM SHELTERS

Where planting is necessary, it should be the aim to have this in accord with the surroundings, and it should be made with a view to its future effect on the landscape. Use largely native trees and shrubs, and do not make formal beds of flowers in natural parks—there is plenty of room for these in the town park or square. Water courses should be preserved, and where feasible, may be supplemented by artificially created lakes or ponds, stocked with water fowl. This may be made a most attractive feature in the park.

Certain buildings will be necessary in the park: shelters in case of storm, and booths where refreshments may be obtained. These, while being located in the most useful situations, should not be unduly obtruded upon the landscape, but placed where they will best harmonize with their surroundings. They should be simple in design and quiet in tone, for if we gain in the outstanding appearance of the building, we almost surely lose in the appearance of the park.

Gateways of proper character may be made a pleasing feature of the park plan, and serve to indicate the separation of the life of the town from the quiet restfulness to be found within the park.

A parks system is lacking in one of its essential features where the park areas are not linked together by suitable parkways or connecting links. It is a usual practice to omit parkways from the town plan until the thoroughfares which might have been used for that purpose are rendered more or less unsuitable by the laying of ill-placed pavements, sidewalks and boulevards; while, on the other hand, with a properly conceived plan, a street of even usual width might have a boulevard reservation sufficient to allow of a planting of shade trees and shrubbery which would serve to carry the park through from point to point in a pleasing and appropriate manner.

BOULEVARDS OR DRIVEWAYS

The boulevards or driveway, as differing from the parkway, will aim to give access to all points of special interest within driving distance of the town, and reaches of mountain, woodland, lake or river front will preferably be chosen for it. Land not being held for building purposes in the country traversed, it will be mostly available at low cost, making reservation for the boulevard feasible, from the financial standpoint, before the upbuilding of the country has interfered with its possibilities. Adjoining municipalities might well enter into a concerted plan for the acquisition and construction of the country boulevard, and thus secure to each the advantage of the linking up of their respective external driveways.

It is imperative that provision be made in every town for its adornment with open spaces or squares. Reservation should be made for these at important street intersections, in front of the railway station and public buildings, and in the residential district. These may

be furnished with fountains, monuments or ornamental lamps, or suitably planted, and lend much to the embellishment and attractiveness of the town, besides maintaining breathing spots where, as congestion increases, one may rest for a moment from the everyday stress and turmoil.

PLAYGROUNDS AND RECREATION AREAS

The supervised playground and the recreation area are among the most vital considerations in the life of a growing community, and it is the positive duty of every municipality to see well to it that every reasonable opportunity is taken to provide for the development of these features. The supervised playground, under the care of competent supervisors, and equipped with gymnasium apparatus, a swimming or wading pool, and a building in which are shower and other baths, and rooms which may be used during the winter for the instruction, enjoyment, and entertainment of the young folks, is an indispensable factor in their training for good citizenship, promoting, as it should, the development of the best qualities of body and mind. Locate the playground amid pleasant surroundings if possible. A relatively small part of a park will furnish the necessary accommodation, and the children will receive a lasting good impression through its elevating influence. If only a barren lot is available, plant the corners with shrubbery and flowers, and so bring to it something of beauty and refinement.

RECREATION AREAS

The recreation area is likewise indispensable, and here should be found facilities for the various summer games and winter sports, including baseball, cricket, football, tennis, skating and hockey rinks, etc., tending to the encouragement of a healthy outdoor life, and offering enjoyment, near at hand, to the toilers released for a time from the workshop, factory, or office.

The responsibility for the operation of the playground and recreation area should rest with a single organization, and should not be divided, as is commonly the case, between the school authorities, the town authorities or other bodies.

The carrying out of the phases of park development outlined will involve serious consideration on the part of the smaller town of the financial ways and means to that end, but with the needs of the situation fully recognized by its people, and with a plan of development determined upon, the raising and setting apart of a sum sufficient in each year to forward at least some part of its features should not be a task beyond those earnestly striving towards the ideals of a progressive municipality.

The Gardens of Bagnell Hall

T. S. Hall-Abell, B. Sc., Cobourg, Ont.

AMONG the many folk that, from lands afar, come to Cobourg for rest or pleasure, for scenery or superlative ozone, there are very few who do not visit and admire the beautiful gardens of Bagnell

any rate, the work was a complete success, and not one of the trees thus planted succumbed.

Looking east one sees part of the garden in figure two. This view was taken from the tennis court.

of this, but not showing here, is the bowling green, where one might

Sit and dream the hours away

While Raleigh and his Captains play;
The time they wait for Spain.

It seems almost impossible that such a complete transformation, of which only a most incomplete account has been given, could have been effected in so short a period; and any visitor to Cobourg possessed of a desire to see the "garden beautiful," should certainly not miss the opportunity of paying a visit to Bagnell Hall and its gardens. It is one of the beauty spots of Cobourg, and this is saying a great deal, as Cobourg itself is one of the beauty spots of Canada.

Utilizing the Small Greenhouse

By Henry Gibson, Staatsburg

A popular plant that is easily grown, likes a comparatively cool temperature, and is perhaps as serviceable as anything that an amateur can grow, is the cyclamen. The one drawback to growing these plants is the length of time it takes them to reach the flowering stage. From twelve to fifteen months is required to produce a good specimen. Seed should be sown in August or September in pans of light, sandy soil, and kept growing right along for flowering the following autumn and winter. As soon as the seedlings appear, place them near the glass so that they do not get drawn, and when large enough to handle, prick off several into a six-inch pot. In the spring they may be potted singly into three-inch pots and grown in a cold frame all summer, with plenty of air, after becoming established, and shade enough to prevent bright sun from reaching them. By July they will require shifting into five or six inch pots, in which they will flower, and an extra good specimen would be better placed in a seven-inch pot. Good drainage must be ensured and a compost used of



Bagnell Hall: Front Approach, Showing Porte Cochere and Elms planted only three years ago—Fig. 1

Hall, the residence of Willis F. McCook, Esq. Surely this gentleman—who is widely known, being a prominent Pittsburgh barrister—can truly say as did the Roman warrior of old, "Veni, vidi, vici."

He came.

He saw—a brickyard—a claypit—a mangold wurtzel patch—and by the all-powerful compound of brains plus brawn, he turned this place of ashes and brickbats into such a garden as one sometimes dreams of—old courts scented with sweetbriar and roses—shady nooks and nodding hollyhocks—a bowling green that Sir Francis Drake might have played upon, and in the centre of all a residence such that the most exacting critic cannot find the wherewithal to criticize.

He conquered.

His coming was in 1909. In October of that year work was commenced under the watchful eyes and to the plans of well-known landscape architects. A general idea was given to them to which to work; other than this, a free hand was theirs.

In figure one, one sees the driveway from the old Kingston Road about half a mile east of the Cobourg Post Office. This leads in a graceful curve up to and through a Porte Cochere, below and adjoining the south-west tower.

Notice the elms on either side of this drive. They were planted less than three short years ago by means of the misnamed tree-planting machines. At

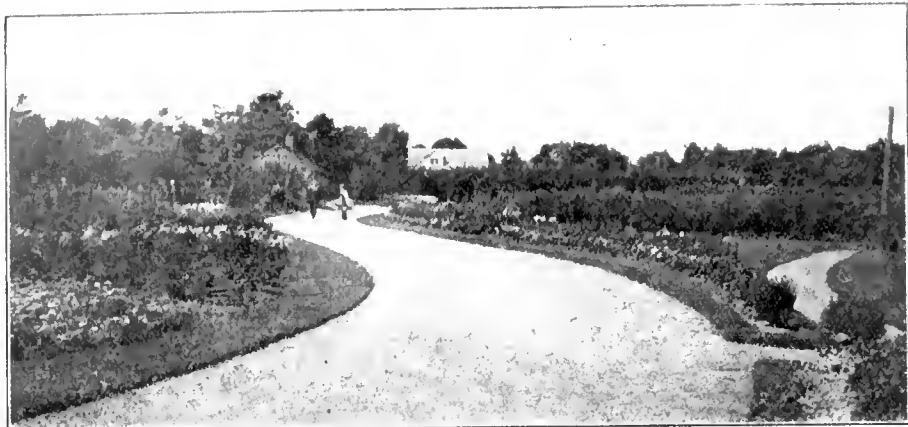
Figure three shows the beds for cut flowers—on the left front where bloom asters, verbenas, gladioli, and roses. The ribbon border on the right of this picture was picked out with red and white geraniums and blue lobelias. One is thankful that a combination of red, white and blue is correct in Canada as well as in the United States of America.

Looking west and to the right of, the drive may be discerned a small brick building. This is the one remaining vestige of brick kiln days. It is the hut in which the men's implements were stored.

The interior courtyard shows up well in figure four, the decorative effects being done in Roman Stone. To the left



Bagnell Hall from the Tennis Court, Looking East—Fig. 2



Bagnell Hall Looking West, Showing Ribbon Border and Cut Flower Beds—Fig. 3

equal parts of loam and leaf soil. Never use all rank manure.

The roots of cyclamen proceed from the fleshy rootstock or corm, and this should be about half-covered in potting, leaving the top roots, whence the leaves develop, clear. The after-culture consists of keeping the plants at all times in a light, airy place, and as near the glass as possible to prevent drawing and consequently weakening. Shade in bright weather only and syringe on fine

days to keep the plants clean and encourage growth.

Cyclamen may be grown on a second year by drying moderately and resting for a time, afterwards reducing the soil about the roots and repotting. They should receive similar treatment as that suggested for young plants, but the flowers are generally earlier and smaller the second year. It is not advisable to save plants after this age, as young stock is far more satisfactory.

My Favorite Flower---The Sweet Pea*

J. H. Wills, Mitchell, Ont.

EACH year I plant my sweet peas in the same place along by a wire fence on the west side of my garden. The ground is clay loam and well drained. In the fall, after the old vines have been pulled up, I throw out the earth about ten to twelve inches wide and one foot deep. I then put in fresh earth, giving it a good coating of well-rotted manure and mix it thoroughly. Later on, before it freezes for the winter, I throw this earth outside of my trench into a ridge, keeping it as lumpy as possible so as to let it get full the advantage of the frost.

My experience has taught me that the earlier you get the seed planted the better bloom you have, and the flowers bloom for a longer period. As soon, therefore, as the ground is ready to work, I clean out the trench and put in about two inches of good manure. This is dug into the subsoil. On top of this I put about five inches of the prepared earth and then plant my seed, planting them in double rows. The seed is sown four to six inches apart and covered with about two inches of earth. This is pressed down with the hoe. As the vines grow up I gradually draw more earth around them till it forms a slight ridge about two inches higher than the surrounding earth, leaving a shallow

trench along the row for watering purposes.

My sweet peas are planted where they get lots of sunshine and plenty of fresh air, and I try to keep the soil cool and moist, but not wet and heavy, as this would cause a weak, yellow vine, and they would not get a good growth. As mine are well drained I always have a strong, healthy, tall vine.

For supporting the vines I prefer for a trellis a six foot wire netting. The

netting is put in place when the vines are two or three inches high so that the vines can get early support. The netting is left about two inches from the ground.

To help retain the moisture, keep the soil around the vines fine, and especially after heavy rains. Cultivate about two inches deep. This lets in the air and helps keep down the weeds. You cannot have the best flowers and weeds.

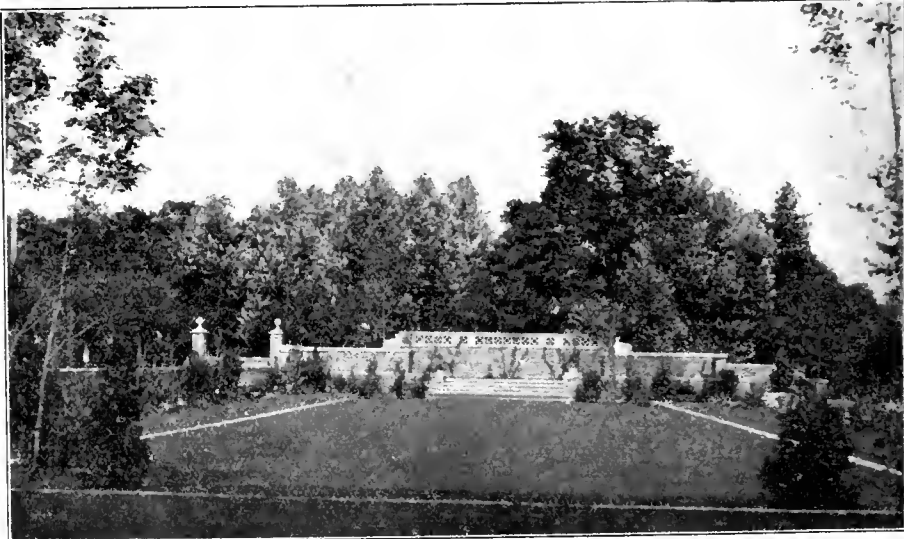
If the plants need watering give them a good soaking at least once or twice a week, as that is better than a sprinkling every night. I always water at night as I am away early in the morning. Water with a rather weak liquid manure, putting the liquid in the trench along the vines.

If the weather keeps dry and hot, spray the under part of the foliage with cold water or soap suds to keep down red spider and aphids.

When cutting the flowers pick them every day. Pick every flower that has all the flowers on the stem in bloom. Do not allow seed-pods to form if you want long continuance of bloom. Select certain plants for seed purposes.

To prolong the season of bloom, pick off the tops of the plants. They will then branch out again. If after a long period of blooming the flowers become small and the stems short, prune the vines. This brings longer stems and larger flowers.

If you decide to save your own seed, pick out the sturdiest vine, cut the poorest flowers, and save the seed from vines having a long, strong stem with three or four flowers to a stem. When they are ripe pick the pods and save the largest seeds. The smaller seeds are at the end of the pods. Discard these. By this method I have had stems sixteen to eighteen inches long and flowers two inches across.



Bagnell Hall : The Inner Court—Fig. 4

*This article won the third prize in the essay competition on "My Favorite Flower and How I Grow It."

New Year's Plans for Next Summer's Garden

Henry Gibson, Staatsburg

WITH the advent of the New Year, most of us resolve that we are going to do something more satisfactory, or should I say accomplish something which comes nearer to our ideal, than we achieved during the year that is just past. To make such a resolution materialize is no mean accomplishment, and particularly is this so with gardening. This garden business is very much in the nature of a race—a race against conditions, weeds, insects, and last but not least, against time. If we only had time enough in spring, summer, and autumn, what a splendid garden we could have. But our time is always too short. The only way to get ahead is to save time in every possible way, and if you have resolved to do this and start to do it now, you have decided upon something well worth while. Anyone who intends having a garden, even if only a small one, and who wastes time, even in mid-winter, is accepting a severe handicap.

There is no greater saver of garden time than the planting plan. It means that when things open up in the spring every minute can be put into actual work, and that everything needed—seeds, plants, fertilizers, and so forth—will be on hand and in proper quantities. Thus there will be no waste of time or materials. More than this, it means vastly better results.

Perhaps you have not done anything as yet to improve your place, beyond keeping the front lawn cut and planting a few vegetables. Even so, if you only have a piece of ground twenty by twenty feet, make a plan of it now. This should be drawn to scale, using a T square and triangle for convenience, and should indicate the space for and amount of each vegetable wanted. Plan to have such vegetables as onions, beets, and carrots, which remain in the ground all the season, in one section as far as possible, and tall-growing ones, as corn, north of the dwarfier kinds, in order to avoid undue shading.

In preparing your plan, make careful use of the seed catalogues. The new ones will soon be out. Study them thoroughly, but be careful in the choice of novelties, as they may not be adapted to your locality. Try out a few, but go easy.

If you have no regular flower garden, devote part of the vegetable garden to flowers, or better still, mark off a long narrow bed or border along some path. Even if it means less vegetables, have a few flowers. Some of the choicest annuals and perennials are as easily grown as carrots. You can start them yourself with your early vegetables in the house or in a hotbed.

The hotbed should be got ready towards the end of the month. A few hours' work will see it an accomplished fact. Select a warm, sunny, sheltered position on the south side of the house or some outbuilding. Clear the ground off level, and if it is not frozen too hard, dig it out to the depth of a foot or eighteen inches, six feet square. This will give room for two three by six standard size sash, which you can buy either glazed or unglazed for a few dollars.

The frame you can easily build yourself or have someone do it for you. Make the back six inches higher than the front. Ordinary three-quarter-inch boards, supported by three by three posts and banked on the outside with rough manure, are all that are required, and the labor is slight when one considers the advantage of having a garden six weeks ahead of time.

Into the frame place the heating material, twelve to eighteen inches of stable manure. Some persons make a practice of taking the manure directly from the pit and using it. A far better way is to take a sufficient quantity, and build it into a square heap. This should be wet, but not soaked, while being put up. After the lapse of a week turn it, and build it up into a heap again, putting the "outside inside" as much as possible. After a few days, put this into the frame, tramping it down well, then cover with about four inches of good rich garden loam.

If you have your soil protected from frost in some convenient place, you will be saved the none too pleasant task of thawing it out over the furnace. When the temperature of the bed has receded to seventy degrees Fahrenheit, as indicated by a thermometer plunged into the soil, the seeds may be sown.

In the greenhouse, January is a busy month. Towards the latter part of the month the first sowings of early vegetables will have to be made. Stock plants should be given more heat and moisture to start new growth for propagating purposes.

Tomatoes that were sown in December, for early fruiting indoors, will now need repotting preparatory to being put into the beds or fruiting boxes. Cucumbers should be brought along to follow the last crop of lettuce, which should now be in the beds. If you are short on pansies start more now, and sow seeds of annuals for setting out in the spring.

If you are desirous of prolonging your display of bloom indoors next spring, start a batch of tuberous begonias now. There are many excellent varieties of these persistent blooming plants that may be purchased at a nominal cost. Start the tubers in boxes (flats) of sand and leaf mould, keep them warm and moist, and after the first watering damp rather sparingly until the young growth appears. Pot them into suitable sized pots (preferably two and one-half or three inch) before the shoots become too far advanced, using a light but rich compost, made porous by the addition of plenty of sand. Continue to pot them on as they permeate the soil with roots, until a six or seven inch size is reached. In these they should be allowed to flower. Feeding with liquid manure or some approved fertilizer is advisable at this stage if the best results are to be obtained. Don't, however, overdo it. Once a week or every ten days is quite often enough to apply stimulants. Once started and growing well, tuberous begonias succeed best in a comparatively cool house, fifty two degrees at night being sufficiently high.



Note the Floral Effect in Connection with this Modest Home, that of Mr. and Mrs. Wm. Knapton, London, Ont.

Types of Greenhouses for Vegetable Culture*

S. C. Johnson, B. S. A.

VEGETABLE growing under glass is becoming one of the important features of agriculture. The demand for more vegetables during the winter months is necessitating building more houses to grow such crops as lettuce, tomatoes, and cucumbers. The market is large and prices good, and the main point which the growers are trying to overcome is that of cost of production. The improved methods of growing and the improved forms of construction are cutting this down considerably. The following points are those which interest the prospective builder, and which may prove of some value:

SITE

The selection of a suitable location for a greenhouse plant demands careful consideration. The progressive grower looks ten years ahead and works toward that end by building in an economical position, using good materials and grows produce of good quality which assure him an increase in trade. The first point which he should consider is location.

Long hauls of fuel and supplies cut down profits, and in locating a greenhouse plant the proximity to a railroad should be carefully considered. A man seeking a fresh location should select one close to a railroad, either steam or electric, which hauls freight. Nowadays the growers instal a siding and arrange their coal chutes so that the handling of coal is minimized. One handling is sufficient where a siding is used and no hauling is necessary. Some growers erect a trestle work so that the coal is simply dumped into the coal hoppers. Coal is one of the largest items of expense which the growers have annually to contend with, and anything that can be saved in its handling adds so much to the returns from the plant for the year. If a distant market is to be supplied in the future, shipping facilities should also be looked into and possibilities of quick transportation either by express or freight considered.

POINTS TO CONSIDER

The grower who already has his land and is now ready to build should consider the following points and build accordingly. Ample means of drainage should be obtained and cold, wet spots avoided. There should be no possibility of spring floods ever reaching the houses, as was the case in several houses in the United States this past season where the crop was totally destroyed. Again the house should not be located in the direct line of drainage of any tract of land, for trouble may occur.

If the houses are to be erected in the path of the prevailing winds, windbreaks of some description should be provided to break the force of the wind from a direct blow on the glass. Greenhouse vegetable growers are realizing the value of the windbreak more than ever before, and are securing shelter by means of high light board fences, clumps of trees, and by planting rows of quick growing trees. If windbreaks of trees are used, the houses should be sufficient distance away from them that there is no danger of falling limbs.

In selecting the site for his first house the grower will do well to erect his house so that he can either add to it or have plenty of room for adding more houses in a line with it. The house first built should be of a size which can be duplicated right alongside of it. Many of the largest growers in the United States started some ten years or more ago with one small house, but at the same time laid out their ground so that they could expand and cover a certain area economically if the first venture proved a success. Some now have five, six, and ten acres under glass, with houses of the same length, and all joined by a main alley. No tearing down and rebuilding of houses was necessary, as each additional house went into the place left for it at the start.

FOUNDATIONS

The question of foundation is the next point to confront the builder. Cement blocks, solid concrete, wooden sides with a shallow concrete base, are common. Solid concrete is generally used by growers. The walls are made eight to twelve inches in width, and are set in the ground to a depth of from eight inches to two feet as the grower sees fit, or the form of construction requires. The solid concrete is usually made in the proportions of six by one, and care is taken to keep all stones from the outside face in order to give an attractive and clean cut appearance to it.

Concrete blocks are rapidly coming into favor for the sidewalks of a greenhouse, and a good appearance is given by their use. The main point about blocks is that they should be so moulded that they will fit the wall posts or lone supports and not cause any extra cutting. In many instances these blocks were made by the growers during the winter months. They are made in all lengths, but the most common I have seen were sixteen inches by eight and eight. The cost of materials for a block this size is estimated to be twelve cents. The price of lumber has risen so much during later years that it is advisable to build as much of the foundation of concrete work as is possible. The upkeep for cement

work is practically nothing, and a good solid, lasting job is made at first.

It is advisable in houses where benches are to be used to leave doors along the side walls whereby earth may be thrown out or in. In smaller houses where no side ventilation is thought advisable, these small doors should be put in in the cement work for convenience.

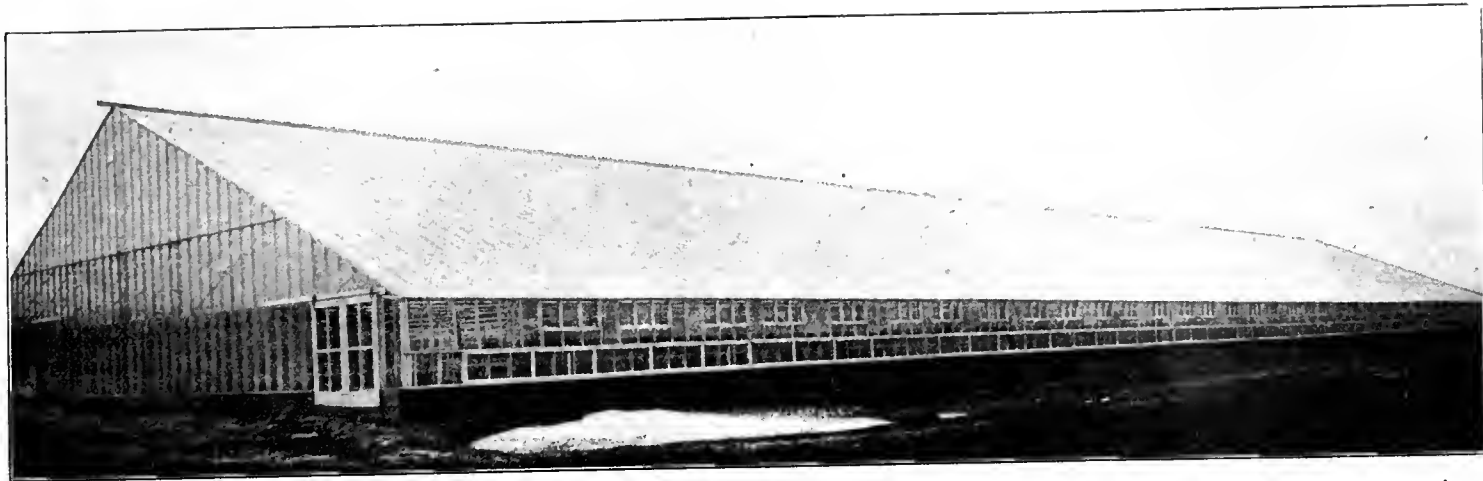
JOINED OR SEPARATE HOUSES

Opinions of various growers in different sections differ as to which type of house is the better. Each has its own supporters. Some prefer the joined houses and others as emphatically assert that they could not grow half the crops they are now doing if they had to use joined houses. In sections where land is very valuable joined houses will cover all available land space and returns can be had from practically every inch. Connected houses cost less in the initial cost than separate ones, although the upkeep expenses are greater for them. Separate houses afford an easy control of side ventilation. Growers now realize the importance of this for their crops in late fall and early spring; in fact, their use is spread over the whole year. Side ventilation can be secured and controlled satisfactorily in the separate house, while in the joined house side ventilation is not so readily received when there are several houses in the range. Separate houses also give more light to the crop owing to the increased amount of glass, and with these houses the least amount of shading is received by the plants owing to the distance from the ridge of the next house.

Separate houses are usually built with a wider span, and while this does not use more glass than two joined houses the same width, the volume of air is increased, improving conditions for the plants. Some growers who have connected houses have had trouble with snow lodging at the gutters and breaking the glass on the roof. This is overcome in the separate houses, and no trouble has occurred where iron cane plates have been used. These seem to be the main points about the separate and joined houses, and there seems to be no question as to which it is advisable to build.

Where land is not too high in value it is best to select a good construction and build separate houses and connect them up by an alley house at one end or in the centre. In some plants this alley house is built large enough to accommodate beds or benches for growing young plants, and there is no waste room. With the separate houses the land between can be utilized by the growing of such crops as staked tomatoes, corn, cucumbers, or squash, and more

*Extract from an address delivered at the recent Annual Convention of the Ontario Vegetable Growers' Association.



The Leamington District, Ontario, Has Long been Noted as a Great Vegetable Growing Section. The Vegetable House Here Shown, one of the Largest in the Dominion, has Recently been completed by R. H. Ellis, Leamington, Ont.

often hotbeds and cold frames are placed in it. In one case a permanent crop of rhubarb was giving good returns annually, in another an arrangement for forcing rhubarb in spring was in use, but the returns from the former method were larger.

WIDE HOUSES

The tendency seems to be to build one wide house to take the place of the two or three of narrower widths that were commonly built some fifteen years ago. The day is here when wide houses are being built by progressive growers. The twenty feet house of a few years ago is being replaced by thirty-five and forty feet houses. All of the newest additions to extensive greenhouse plants are being made with wide houses, and it is evident that the wide house has come to stay. It is quite common to see seventy-five feet houses in course of erection, and some are wider than this, running as wide as one hundred and twenty-five feet.

SAVING LABOR

Growers agree that the only way to overcome the labor problem is to use more horse-drawn machinery in the houses, and the wide house permits all operations of horse cultivation. Gable ends are so arranged that wagon loads of manure may be hauled in as if the field were simply enclosed with glass. Plows and harrows are then used to cultivate.

Wide houses are of necessity higher at the ridge. This gives an increased volume of air above the plants, and the atmosphere will not undergo such sudden changes as in the houses which are not so high. It may take somewhat longer to heat the wide house, but once it is heated it will be more satisfactory, as the temperature changes more gradually owing to the large volume of air. Tomatoes and cucumbers suffer a check easily from a lowering of temperature, and in the wide house this condition may be easily prevented.

Growers have told me everywhere that it takes less fuel to heat a wide house

than it does a range of two or three narrow ones making the same width. These houses also allow more light to reach the plants from the increased length of the sash bar and the glass sides which are usually built from six to eight feet above the grade lines. Full length side ventilators are being used and the whole side is of glass. Plants can be grown close up to the side walls, and all available spaces can be put under cultivation. The question of what is a suitable width must be answered by the grower himself. Judging from houses visited last summer, the prevailing width seems to be seventy-five feet, but a considerable number of forty feet houses are also being built. There are very few wide houses in Ontario, but they are beginning to become more popular, and growers never regret building the wide house once they have it up and have obtained a crop from it.

The high eaves and the increased ventilators have made the growing of cucumbers more simple and the vines can now be planted close to the eaves, as there is plenty of head room. Lettuce can be grown successfully on the solid beds and practically no land wasted. Some growers may raise the objection that they may not want a house so large for one crop or they may want to grow two crops which demand temperatures which are different. This difficulty has been overcome by one firm, and is accomplished by the building of partitions where required. This and the arrangement of their heating plant has given them what they require and yet they have the wide house. In short, the advantages of the wide house are:

First, atmospheric conditions can be better controlled.

Second, less heat is needed in a wide house.

Third, more light is received by the plants in wide houses.

Fourth, plants grow to marketable size without danger of a check.

Vegetable Pests*

A. H. MacLennan, B.S.A., Guelph, Ont.

Two very important troubles of the market gardener are celery blight and the maggots which attack onions, cabbage and radish. Late blight of celery (*Septoria Petroselin*), appears first as rusty brown spots on the outer leaves. These gradually spread under favorable conditions until the leaf dies. The spots will also be found on the stems. A season of warm, moist weather is most suitable for its spread, and it will also appear in the storage house. It can be prevented by the use of Bordeaux mixture if applied at the right season. Our work here the past two years has shown that if we wish to grow celery at a profit, we must spray often and thoroughly.

Cabbage, onion and radish maggots are the larvae stage of two winged flies almost identical in appearance. The adult appears generally about May fifteenth till June fifteenth. The eggs are laid close to the host plant and are hatched in three to ten days time. The worm which hatches being without wings or legs, is helpless unless against its host plant. For the cabbage maggot the tarred felt paper disc is a sure cure. For the onion and radish maggot no sure cure has been found. Carbolic acid wash and kerosene and sand have been used. As a Vegetable Growers' Association we should try to have these tested commercially. In each branch of the Association where the crops are grown, a demonstration could be carried on to show the results obtained from such treatment.

For early celery, for cutting in August, the seed should be sown about the middle of February. It should be sown on a greenhouse bench, in flats or in a hotbed; if sown in a greenhouse it should be on the shady side of it.—F. F. Reeves, Humber Bay, Ont.

*Extract from a paper read at the recent convention in Toronto of the Ontario Vegetable Growers' Association.

The Canadian Horticulturist

COMBINED WITH

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2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office) 25 cents extra a year, including postage.

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CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1911. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,600	September, 1913	12,035
March, 1913	11,209	October, 1913	12,085
April, 1913	12,000	November, 1913	11,193
May, 1913	12,368		
June, 1913	12,618		
July, 1913	12,626		
		Total	132,029

December, 191312,967

Average each issue in 1907, 6,627

" " " " 1908, 8,695

" " " " 1909, 8,970

" " " " 1910, 9,067

" " " " 1911, 9,541

" " " " 1912, 11,037

" " " " 1913, 12,902

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts. Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

DEATH OF ALEXANDER McNEILL

In the death of Alexander McNeill, Chief of the Dominion Fruit Division and a former president of the Ontario Fruit Growers' Association, the fruit growers of Canada have lost one of their staunchest friends, warmest advocates, and greatest benefactors. First as a practical fruit grower, next as a farmers' institute speaker and officer of the provincial fruit growers' association, and of late years as Chief of the Dominion Fruit Division, Mr. McNeill has been a leader in all movements for the uplift of fruit growing in Canada.

The late Mr. McNeill was one in whom the element of selfishness was lacking. The public weal always took precedence with him to his own welfare. Again and again he allowed his own interests to suffer in order that those of the fruit growers and of his friends generally might be promoted. His neglect to take due precautions in regard to the care of his own health while he was engaged in his official duties was largely instrumental in bringing about sickness which ultimately led to his death.

The spread of cooperation in the fruit industry of Canada, but more particularly in Ontario, is due in a large measure to the earnest efforts of the deceased. Many years ago Mr. McNeill pointed out the advantages of cooperation, and later wrote various bulletins dealing with cooperation, which were exhaustive and practical in their treatment of the subject. These have had a wide circulation. A recent bulletin by him entitled "Modern Methods of Packing Apples and Pears" is the best of the kind that has ever been published in Canada, and one which compares favorably with the best issued in any country. The fruit crop reports that have been issued of late years by the Dominion Fruit Division with much benefit to fruit growers were the result of his efforts.

Mr. McNeill accepted office with the Dominion Government about the time the Fruit Marks Act was being brought into force. Much of the credit for its successful working is due to his earnest efforts on its behalf. The great success of the last two Dominion fruit conferences also were due in a large degree to the careful preliminary work of Mr. McNeill. His death has created a vacancy in the ranks of our fruit growers which will long be felt and deplored.

THE HIGH COST OF LIVING

One of the enigmas of our day is the solution of the problem involved in discovering the reason or reasons for the increased cost of living. Learned authorities have advanced various and sundry explanations that do not seem to satisfy the public. In the meantime the cost of living continues to advance.

Sir Wilfrid Laurier claims that it is due to the tax on foodstuffs, and hopes to climb back into power by advocating a reduction in the tariff on such articles. His remedy would benefit the consumer to some extent but very little. This is proved by the fact that in spite of the reductions

that have been made in the United States tariff, the problem has not been solved in that country.

One of the main reasons, in our opinion the main reason, is found in our increasing land values. This tendency of land to increase in value is apparent in all countries as is also the increase in the cost of living.

Three factors enter into the production of material necessities: Land, labor, capital. Land receives its return in the form of rent, labor in the form of wages, and capital in the form of interest. If any one of these factors receives more than its fair share the other two of necessity receive proportionately less than their just dues.

All wealth, including food and clothing, is produced out of the land. Anything that makes it difficult for the people at large to produce wealth from the soil, restricts to a corresponding degree, the production of those things which the people require to maintain life. The tendency of land to increase in value has this effect.

Wherever land is high in value it is difficult for people to acquire its control or to pay the rentals demanded for its use. Thus production is restricted. In Ontario, for example, there are hundreds of thousands of acres of good fruit and farm land that are not being worked because they are being held at values which are just high enough, when other factors are considered, to keep them out of the reach of those people who would be glad to use them were there better reason to believe that they could be worked with profit. Anything which will help to bring this land into use will immediately tend to reduce the cost of living to a corresponding extent. The reason there are over fifty thousand less farmers on the farms of Ontario to-day than there were ten years ago is because farm land on the average is so high in value farmers have found that they could not earn from it enough to allow themselves a fair interest return for their investment and wage return for their labor. Therefore, they have preferred to sell their land and invest the proceeds in other ways. In consequence, production has been decreased, the cost of living has increased, and people do not seem anxious to try and bring into cultivation the land which has been thus discarded. This feature of the situation should receive due consideration whenever the high cost of living is under discussion.

THE FRONT LAWN PROBLEM

Most of us like to keep our front lawns in the best possible condition. Most of us also, who live in the larger towns and cities, have to contend with serious difficulties in the achievement of our desire. These very often take the form of postmen, paper boys, and messengers, who persist in walking across our lawns and cutting corners whenever they think that they are not likely to be detected in so doing. The officers of the horticultural societies in Ontario might accomplish a good work by dealing with this situation. A protest made to the postmaster, to the newspaper offices, and other agencies which employ such offenders, would soon tend to bring about an improvement, especially if followed up vigorously upon the committal of second or third offences. Were members of horticultural societies encouraged to report such incidents, improvements would soon become possible. If necessary, by-laws might be passed by our different municipalities which would make it more easy to deal with offenders.

The suggestion of Sir Wilfrid Laurier that the tariff on foodstuffs, including fruit and vegetables, should be reduced in order to benefit the consumer is not likely to meet with the approval of our producers. Sir Wilfrid has not made any suggestion that the duty should be taken off insecticides and spraying materials, off spraying machinery, fruit baskets, and a hundred and one other articles required by the average fruit and vegetable grower in the production and marketing of his crops. Were the duty to be lowered on fruit and vegetables and not on these other articles, our producers would be placed under a tremendous handicap, as compared with the producers in the United States, and these industries in Canada would soon show the effect of such a policy. Sir Wilfrid Laurier will show more of the qualities of a statesman when he takes all such factors into consideration, and not just those that are likely to meet with approval by the consumer.

At the time of the recent annual convention in Toronto of the Ontario Horticultural Association the suggestion was advanced by one of the delegates that the Department of Agriculture should send out speakers to meetings of horticultural societies as is done in the case of Farmers' Institutes. The superintendent of horticultural societies should follow up this suggestion more thoroughly than has been done in the past. With proper encouragement more societies might be induced to engage speakers than have yet done so, and a better arrangement of dates could be effected. What has been done in a more or less haphazard way hitherto, might be systematized with advantage to the department, and to the societies concerned.

PUBLISHER'S DESK

Our front cover illustration shows the interior of the magnificent conservatory in the private residence of Sir Montague Allen in Montreal. It reveals the comforts and pleasures which may be derived from a home conservatory. We would that all the readers of The Canadian Horticulturist who delight in having flowers in their homes might have similar conservatories.

The year 1913 proved the most successful in the history of The Canadian Horticulturist. This encourages us to anticipate even better things for 1914. Well we realize that the paper which is not better today than it was a year ago is falling behind in the race. Therefore, it will be our aim to make The Canadian Horticulturist during 1914 stronger and better in every way than it has been hitherto.

The February issue of The Canadian Horticulturist will be our Third Annual Spraying Number. It will include a special front cover, which will be in harmony with the issue and an attractive feature in itself. The articles and illustrations will give special emphasis to spraying. They will be furnished by some of Canada's leading authorities. Watch for this issue. It will be a particularly good one.

The February, March, and April issues of The Canadian Horticulturist are always crowded with advertising. Every year we find it difficult to give those advertisers whose copy is received late in the month

as advantageous positions as we otherwise might. Advertisers are urged, therefore, to prepare for this issue and to cooperate with us by forwarding the copy for their advertisements as early in the month as possible.

May the year 1914 be crowded with blessings for the readers of The Canadian Horticulturist, is the wish of its Publishers.

SOCIETY NOTES

Plant Registration

At the recent convention in Toronto of the Ontario Horticultural Association, the committee on "Names and Varieties" suggested the inauguration of work in connection with an official registration of plants, which it was pointed out will need the support and cooperation of kindred societies. The work of preparing lists giving the correct pronunciation of words frequently mispronounced had been continued and a commencement made on a series of lists giving the most generally accepted English or Common names of popular and desirable plants. Progress had been made also in the preparation of a series of lists giving various common terms used in plant nomenclature, together with the meanings of such names. The report was signed by Messrs. H. J. Moore, of Niagara Falls, and by Mr. F. E. Buck, of Ottawa.

Mr. C. W. Nash of Toronto gave an entertaining talk on "Wild Life About the Home."

Weston

The Weston Horticultural Society has had the most successful season in its history. Great interest has been taken in the lawn and flower competitions, and in many respects the appearance of the whole town has been transformed. In presenting his report to the society, S. A. Frost, of Toronto, who judged the competitions, said in part:

"During the past three years the improvement in the lawns, gardens and flowers of your town has been most marked. When in 1911 I judged the gardens, I saw some very nice ones and a few that were fair. In 1912 I noticed a great improvement. The lawns were cleaner, the grass was better grown, the edges were more neatly cut, and the surroundings improved. This year I have noticed a still greater improvement. Many lawns have been reseeded and are just like velvet. Although we have had a drier season, they have been better watered. Weeds have been kept down and flowers have been better arranged. The asters were fine. I have seen some asters in Weston better than I could buy in Toronto.

"This shows what the Horticultural Society has done for Weston. If we could only show other towns what an improvement can be made when a few people take an interest in their gardens and surroundings, what a lovely country we would have. Members, get busy! Hustle up some more candidates for the W.H.A. Get them interested in prize gardens. Push the good work along and make Weston worth while!"

Ottawa

Last summer there were one hundred and eighteen entries in the garden competitions inaugurated by Her Excellency Lady Grey, and now continued by the Ottawa



J. H. Bennett, Barrie, Ont.

President, Ontario Horticultural Association.

Horticultural Society. Greater interest than ever is being shown in the work. A garden that has often been a prize winner is that of W. G. Black. Year after year it has been praised by the best judges of floral displays who have visited this city. A. G. Acres was the winner of the first prize for verandah effect. Some beautiful palms formed a suitable background for the various other splendid collections of flowers. Wm. Holtz, who this year exhibited for the first time, was much surprised when he learned that he had won first prize for box of flowers not exceeding five feet.

A garden that presents a splendid appearance from the street is that of Mr. J. B. Spencer. The garden of Mr. Wm. Graham is a fine example of what can be accomplished within a limited area. That the backyard can be made as attractive as the front lawn is the belief of Mr. C. A. Glendennin. The beautiful garden in the rear of Mr. Glendennin's residence is ample evidence that he has made his ideal a reality.

Berlin

That the citizens of Berlin appreciate the work that is being done by the Berlin Horticultural Society is evidenced by the interest which they take in the workings of the Society, the membership of which now numbers two hundred and eighty. The lawn and garden competitions are open to all. Last year the rivalry was even keener than ever.

On August 27 and 28 a most successful flower show was staged in the market building. Eighty-nine exhibitors showed over one thousand entries. The receipts from admission were one hundred per cent. ahead of last year's record. More prize money too was paid out over four hundred and fifty dollars in all. During the season several lectures on gardening, which were open to the general public, were given in the hall of the public library.

The Canadian Horticulturist — It is strictly high-class, and I prize it very much — Geo. E. Falconer, Port Elgin, Ontario.

Ontario Fruit Growers and Transportation Problems*

G. E. McIntosh, Forest, Ont.

A YEAR ago your Transportation Committee honored me by my appointment as transportation agent of your association to look into the conditions governing the transportation of fruit, and the facilities afforded by the different carriers. The work has become deeply interesting. It is high time the education being advanced by the various rural fruit growers' associations and also by the mother association be not directed only towards production, but to transportation and marketing.

The fruit grower must prepare his fruit for the consuming public in accordance with certain legislation under a penalty. No matter how great the quantity, or how good the quality, the success of the industry is then largely dependent upon the condition in which the common carriers of this province deliver it to the various markets.

The products of agriculture are second only in quantity of railway tonnage to the products of mines. Fruit and vegetables, of which the railways carried over a million tons last year, are third highest in the list of agricultural products, contributing to the railway receipts. In other words, the agriculturists are the second best customers the railways of the Dominion of Canada have, and are therefore entitled to at least equal advantages with the shippers of other commodities.

The problem of rates—and we believe they are all the traffic will bear—is not the essential point, nor is it the most important of the many complaints or grievances of the fruit growers and shippers. It is lack of railway equipment, inefficient terminal facilities, a service in transit that assures no certainty of reaching a market in proper time, delays in supplying cars, rough handling, lack of shelter, pilfering, neglect in icing cars or attending heaters according to season, and certain privileges that are accorded shippers of other commodities, but not for fruit. These are a few of the more important matters, attributable to some of which are the serious losses fruit growers have experienced, and to which the province as a whole is suffering because our Ontario fruit is not reaching the markets, especially the western markets, in a proper condition, to meet the competition it is subjected to there.

The task, therefore, confronting your Transportation Committee is one of great importance. I beg to submit, herewith, a synopsis of what has been attempted and accomplished during the past year.

Application was made to the Railway Commission to compel the railway companies under their jurisdiction to allow part carloads of fruit charged at carload rate and weight from original point of shipment to final destination to be stopped in transit for completion of load at an additional charge of three dollars a car for each stop. In support of this request it was pointed out that British Columbia fruit shippers had the advantage of an inward rate, covering a sixty mile radius of ten cents a hundred pounds, for assorting carloads, and that shippers of horses, cattle, hogs, sheep, live poultry, grain, canned goods, lumber, and poles were permitted to ship part carloads at carload rate and weight from point of shipment to destination and stop for completion of load for three dollars.

*Extracts from a report presented at the recent annual meeting of the Ontario Fruit Growers' Association.

The ruling of the Board upon this request was given on March 6th, 1913, and was as follows: "That the application for the stop-over privilege be, and is hereby refused." It is established by various decisions of this Board, says Commissioner McLean, as well as by decisions of the Interstate Commerce Commission, that the transit practice is a privilege, not a right, and the Board is without power to direct that this privilege be given by the railway.

Section 317 of the Canadian Railway Act reads: "No Company shall make or give any undue or unreasonable preference or advantage to, or in favor of, any particular person or Company, or any particular description of traffic, in any respect whatever." Yet the Board of Railway Commissioners allow such to exist, and have ruled that they have not the power to compel a railway company to extend this three dollar stop-over privilege, preference, or advantage, or whatever you may call it, to the fruit shippers who are paying a rate double that of live stock, two and one-half times that paid for lumber, three times the rate paid for grain, and four times greater than that on poles.

MINIMUM INWARD RATES

From December, 1904, when tariffs were first filed with the Railway Commission, down to March 28, 1911, both the G.T.R. and C.P.R. carried apples to concentration points for storage, inspection, or completion of carloads and reshipment, at a reduction of one-third from the local tariff rates. The combination of the in and out rates not to be less than the through rate from the first shipping point to the final destination, plus two cents per hundred pounds; and if to the concentration point a joint route had to be used, the reduction applied only to that portion of the earnings of the company that received the second haul, or reshipment from that point. On March 29th, 1911, the arrangement was modified by withdrawing the completion of carloads concession, and restricting the storage and inspection privileges to carloads.

The Commission was asked jointly by the Simcoe Fruits and your Transportation Committee to order the re-establishment of these concessions in the event of not granting the stop-over privileges. The Board's ruling upon this request, dated March 6th, 1913, was as follows: "That the railway companies subject to the jurisdiction of the Board re-establish the arrangement formerly in effect, whereby apples were carried to concentration points for storage, inspection, and for completion of carloads and reshipment, subject to certain conditions, at a reduction of one-third from the local tariff rate to the concentration points, so as to become effective within thirty days from the date of this order, the railways having not satisfactorily justified the abrogation of the arrangement which has been shown to have been in existence in Ontario for a number of years."

On July 5th, 1913, I am informed by Mr. Cartwright, secretary of the Commission, that the railway companies had applied for permission to refer this ruling to the Supreme Court, on the grounds that the Board had not jurisdiction to issue such an order. Their request was granted, but I am given to understand the order issued by the Board on March 6th, as above read, remains in effect until either quashed or withdrawn, and the rebate concession is therefore available for those requiring it.

As several shippers were annually paying out large sums of money for providing slat floors for refrigerator cars or box cars when refrigerators could not be supplied, to protect their shipments, the Commission was asked for a ruling compelling the railways to pay shippers for providing such.

Their request was granted by an order, issued June 30th, 1913, No. 19570, reading as follows:

"It is ordered that where shippers furnish slats for the floors of refrigerator cars not equipped with permanent slatted or double floors, or for the floors of box cars tendered to and accepted by shippers in lieu of refrigerator cars, for the carriage of fresh fruits, railway companies subject to the jurisdiction of the Parliament of Canada shall allow the shipper three dollars per car for the said slatting; the shipper to be permitted to deduct the said allowance from the freight charges payable by him upon the shipment in such car in which the said slatting has been furnished; the shipper's receipt for the amount so allowed to be given the railway company's agent at the forwarding station, and to be accepted by him as so much cash in the prepayment of the freight charges on such car."

This is three dollars better than it was up till this order went into effect, but your Transportation Committee are not yet satisfied in this matter. Some shippers put in floors and have done so this season that cost considerably over three dollars, and weigh probably one thousand pounds, but under the Canadian classification no reduction is allowed off the minimum carload weight for these floors, and consequently the shipper has to pay freight on same. We might take the case of a Sarnia shipper fitting a car as outlined; he gets no allowance from his freight minimum. In Port Huron—a mile away—another shipper fits a car, and under the official classification he is allowed one thousand pounds for such fittings, from the car minimum.

RECIPROCAL DEMURRAGE

The Ontario Fruit Growers' Association, the Toronto and Montreal Boards of Trade, the Canadian Millers' Association, the Ontario Associated Boards of Trade, the Ontario Coal Dealers' Association, and the International Harvester Co. were heard in Ottawa, June 16th and 17th, by the Railway Commission on the question of reciprocal or average demurrage. It was my privilege to also represent your Transportation Committee at this hearing, to endeavor to show the great need of something being done to ensure a better service in the supplying of cars, a better mileage rate in transit, and a more prompt delivery at terminals for fruit shipments.

At present a shipper who allows his car to remain more than twenty-four hours of free time at intervals before unloading is fined one dollar a day for every day beyond such free time. Last winter the Board raised this to two dollars and three dollars for the first and second day, for four months as an experiment, but the experiment did not bring about the results which the railways claimed would be forthcoming, viz., that cars would be released, by consignees, and could then be supplied promptly to the shippers. The fact then is apparent that the fault is really congestion at terminals, which can only be remedied by the railways providing better terminal facilities.

(Continued on page 16)



Strawberries

YIELD \$500 to \$1200 per acre under the Kellogg sure-crop method. Our beautifully illustrated 64-page book gives the complete Kellogg Way and tells all about the great Kellogg plant farms in Oregon, Idaho and Michigan. R. M. KELLOGG CO. Box 570, Three Rivers, Mich.



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Nova Scotia

The Nova Scotia Department of Agriculture is determined that the apple maggot shall not gain a hold in the orchards of that province. So far this pest has not made its appearance, except in a very few localities. Infested fruit, however, has been coming in from Ontario and the New England states. When preventative measures are taken in time this pest can be controlled. It spreads very slowly, sometimes confining its attack to only a few trees for a number of years. This habit is a very fortunate one. It is hoped that all persons interested in the fruit industry in that province will be on the lookout for this insect and report any appearances to Robert Matheson, the Provincial Entomologist.

Ottawa Flower Guild

The Ottawa Flower Guild continues to progress. At a meeting last fall over forty new members were admitted. The bulbs chosen for this season are Narcissus Trumpet Victoria, Narcissus Trumpet Princeps, and Hyacinth Gigantea. The plants are Whitmanii Fern, Begonia Luminosa and Asparagus Plumosus.

Children up to twelve years of age receive three of each set of bulbs. Children over twelve are given a choice between plants or bulbs. A bulb exhibition will be held in February at which the children will be given an opportunity to compete for prizes. President R. B. Whyte has been giving instructions recently on the growing of bulbs. Marked benefit is following the work of the society.

With one organization handling a large volume of apples it will be possible to secure better terms from the railways.

Douglas Gardens

OAKVILLE, ONT.

A Happy and Prosperous
New Year

To All the Readers of
The
Canadian Horticulturist

Our Spring Planting List will be ready for mailing on the 1st of February.

If not now on our mailing list please send Post Card giving name and address, and a copy will be sent.

JOHN CAVERS



Some Practical Points On Greenhouses

HAS it ever occurred to you that the construction of greenhouses is decidedly different, and that a great deal of the success of your flowers depends on the construction?

Haven't you thought that practically the only difference in greenhouses, aside from design, was the difference in price?

With everything else, isn't there always some one kind that is generally conceded to be better than the rest, and taken as a standard for comparisons?

Then, isn't it only logical it should be so with greenhouses? When other greenhouse builders claim their houses are

"as light as the U-Bar's," it's significant that the U-Bar is the lightest of them all.

If the other builders are constructing their houses with curved eaves as near as possible like the U-Bar's, there must be a distinct advantage in the U-Bar curved eaves.

Now, the truth of the matter is: No one can or does

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build a house anything like the U-Bar, because it's a patented construction and we are its sole users.

That it has distinct advantages, greenhouse experts admit. Whether these advantages are worth the difference in cost is a question that you can settle only after a careful comparison.

Before you put any money in a greenhouse, it might be well to go into the matter a bit.

Our catalog will be a great help. To have one of our representatives call would doubtless be the most satisfactory. Which shall it be?

GLORIOUS GARDENS from ENGLAND

KELWAY'S famous Hardy Herbaceous Perennials—Gaillardias, Pyrethrums, Pæonies, Delphiniums and others—are from strong, country-grown stocks which flourish under almost all conditions of soil and climate and make it possible to reproduce successfully in this country much of the charm and beauty of the finest old English gardens.

Choice named collections (specially picked to suit Canadian conditions) of Pæonies from \$3.75 to \$17.00; Delphiniums from \$2.25 to \$13.50; Gaillardias from \$1.50 to \$4.50; Pyrethrums, \$1.50, \$3.00 and \$5.10 a dozen.

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write for to-day**

Ontario Fruit Growers and Transportation

(Continued from page 14)

Our request was for reciprocal demurrage, that is, a system by which the railways as well as the shipper would be fined for delay in unloading, according as one or the other was responsible. The same would apply in the ordering of cars, if cars were not supplied in forty-eight hours, the railways would pay the shipper demurrage for each day's delay thereafter, and if supplied and not loaded in proper time, then the shipper would pay the same rate. Delays in transit or in placing would or should be in the form of a penalty.

By the average demurrage system the charge on all cars held for loading or unloading by shipper or receiver would be computed on the basis of the average time of detention to all such cars released during each calendar month as follows:

First—A credit of one day allowed for each car released within twenty-four hours of free time, and a debit of one day charged for each twenty-four hours beyond the first forty-eight hours of free time.

Second—At the end of the month the total number of days credited will be deducted from the total number of days debited, and one dollar a day charged for the remainder.

In supporting the reciprocal plan, I believe its adoption would be a fair settlement of the question, whereas the average plan would discriminate against the small shipper in favor of the big one. Let the railway as well as the shipper be penalized, but we must be prepared and willing to accept any ruling whereby the service will be improved.

From returns furnished me by shippers who kept records of shipments, as requested, last season, I was enabled to present to the Board accurate data showing losses sustained by shippers through delays in supplying refrigerator cars, etc. Out of forty shippers, requiring one thousand one hundred and eighty-six refrigerator cars, twenty-six experienced delays of from four to thirty-eight days in getting them, and in some instances were compelled to use box cars. An instance may be given of one shipper, who ordered eight refrigerator cars from the M.C.R. Co. on October 24th. He received two on November 28—35 days; one on November 30—thirty-seven days; one December 1st—thirty-eight days; and no more until December 13th. Another ordered six refrigerators from the P.M. Railway Co. on November 4th, and received the first car on December 10th, and so on all through the list.

Regarding delays in transit, the evidence submitted covered everything required by the fruit grower, from the nursery stock to the orchard product, including spray material. On fruit shipments to the western market, Winnipeg shipments travelled as slow as two and three-quarter miles an hour; Brandon, from four and three-quarter to ten miles an hour; Regina, four and three-quarter, five and one-half, and six miles an hour, and several other points about as bad. Conditions at export points were also referred to, instances being quoted where cars were held a full week and more during severe cold weather, and were badly frosted. Fifty-seven shipments of nursery stock by one shipper to points in Ontario, during the month of May, were even acknowledged by the railway representatives to be a most shameful condition of affairs. Some of these required seven teen days going twenty-three miles, fifteen

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We have some excellent plants of the Black Naples variety, grown from the most productive patch in the district. Also some Lawton Blackberry plants.

Apply for prices.

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STRAWBERRIES

Your copy of our Strawberry Catalogue is now ready. A Post Card will bring it. It describes all the best varieties of Strawberries and Raspberries. Cultural directions and lots of other valuable information.

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185 Wright Avenue - Toronto, Ont.

THE BEEKEEPERS' REVIEW

would like very much to enroll a goodly number of new subscribers for the year 1914. Listen! Besides the 3,000-colony series managed from one office, we will begin with the January number of the REVIEW a series of articles by a beekeeper "grey with experience" that we will call the Farmers' Series; or, How to Produce Comb Honey with Two Visits a Year. The editor of the REVIEW has looked into this system quite thoroughly, and believes that, with this method that will be described in the REVIEW during 1914, the busy man or farmer can harvest much more comb honey per colony, with about a fourth the work that is required with the ordinary system now in vogue. We are printing 400 extra sets of the REVIEW for the last half of 1913; and as long as they last they will be included free to all new paid-in-advance subscribers for 1914. All progressive beekeepers should subscribe for two or three good bee journals. We are making a special low price on the REVIEW when clubbed with other bee journals.

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THE BEEKEEPERS' REVIEW

NORTHSTAR, MICHIGAN



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At Raynes Park, London, Messrs. James Carter & Company have the most complete testing and trial grounds in the world.

For generations they have been selecting, cultivating and perfecting their seeds to a lineage that insures quality.

Carter's Seeds are cleaned and packed by unique methods and come to you absolutely true to name.

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Our catalogue, "Garden and Lawn," ready about January 1st, lists not only hundreds of vegetables and root crops, but has a complete list of flowers for garden and conservatory.

It gives also many useful hints on planting and cultivating.

Write to-day. Mailed Free.

Carters Tested Seeds, Inc.

133A King Street East, Toronto

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ALLOW ME TO PRESENT
MY BEST FRIEND

ROYAL

YEAST CAKES

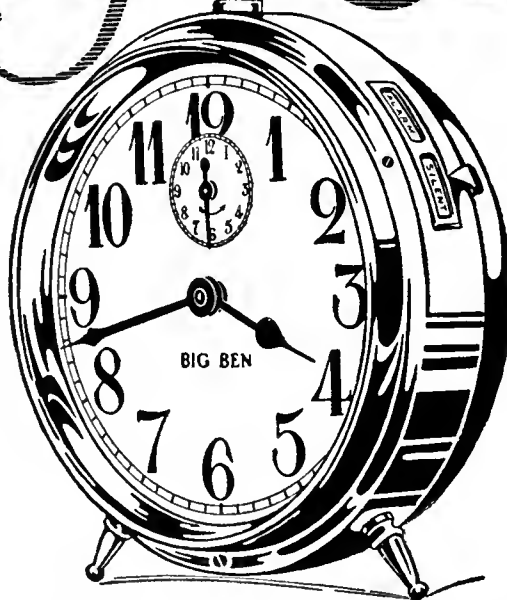


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BE CAREFUL TO
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ROYAL YEAST CAKES
DECLINE SUBSTITUTES.

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Big Ben



Hitch Your Sleeping Schedule to Big Ben

Big Ben will wake you early enough for profitable before-breakfast action. His gentle get-up call starts the day with a flying start on thousands of farms.

For your accommodation he rings TWO WAYS. He'll get you up by degrees or in a hurry. Set him either way you wish—to give one long five-minute ring, or ten short rings at one-half-minute intervals, until you're wide awake.

He stands 7 inches tall; is triple-nickel plated over a tested implement steel coat, the handsomest and truest thoroughbred in the clock world. He has big, bold numerals and hands that show the time plainly at a glance, large keys that anyone can wind easily, and such a pleasant tone that you are glad to get up when he calls.

Big Ben makes early rising easy. He's the leader of the early morning brigade. His cheerful

"good morning" ring calls millions of live wires to action. Thousands of successful farms are run on a Big Ben schedule. He starts you off right in the morning and keeps you right all day. From "Sun up" to "Lights out" he regulates your day. He'll work for 36 hours at a stretch and overtime, if necessary. The only pay he asks is one drop of oil a year.

He is sturdy and strong—built to last a lifetime. Yet under his dust-proof steel coat is the most delicate "works." That's why his on-the-dot accuracy has won him fame.

Big Ben's wonderful sales are due to his having "made good." His biggest hit has been with folks with the "make good" habit. He stands for success—that's why you'll like him for a friend.

When 3 million families find Big Ben a good clock to buy and 20,000 dealers prove he's a good clock to sell, it's evidence that he is worth \$4.00 of your money. Suppose you trade \$3.00 for him today.

A community of clockmakers stands back of him. Their imprint, Made in La Salle, Illinois, by Westclox, is the best alarm-clock insurance you can buy.

days going twenty-eight miles, twenty-two days going thirty-seven miles, twenty-six days going seventy-two miles, etc., throughout the whole fifty-seven shipments. Similar reports to the foregoing were submitted on the placing of carload shipments of fruit after arrival at destination.

In reply to Chairman Drayton's inquiry as to what rate of transit the fruit shipments should be given, my suggestion was ten miles an hour, and I am satisfied this is not an unreasonable request, considering the freight rate, and the volume of business we tender. For instance, between New Orleans, La., and Chicago, for fruit and vegetable shipments, the run is made in fifty-five hours, a distance of nine hundred and twenty-two miles, or an average speed of sixteen miles an hour, while the actual running speed would be greatly in excess of this. The schedule for banana trains between these points is forty-seven hours and thirty minutes, an average of twenty miles an hour. Fruit trains from Southern Illinois are run from Centralia, Ill., to Chicago, two hundred and fifty-two miles, in ten hours and five minutes, about twenty-five miles an hour, and this service dates back as far as 1901. In the district comprising Delaware and the eastern shores of Maryland and Virginia, which ship probably ninety per cent. of its production north of Philadelphia, growers have the accommodations of specially constructed cars for fruit, and a service almost on passenger schedule.

FAST SERVICE ELSEWHERE


From Wilmington, N.C., to New York, fruit trains average better than sixteen miles an hour. Florida, like other southern states, is provided with a special fast freight service for the transportation of fruits, trains making the run between Jacksonville and New York, including all delays, at the rate of over seventeen miles an hour. All through the fruit producing states, we find similar service provided. From the Jacksonville, Palestine and Tyler districts in Texas to New York, one thousand five hundred and twenty-three miles in five days, and even to Montreal we find deliveries of peaches and cantaloupes made for sixth morning market. Between Southern California and New York, three thousand and twenty miles, an average speed of nearly thirteen miles an hour is attained. Washington, Oregon, and Idaho, competitive states in Western Canada with our Ontario producers, also have a special schedule during the heavy movement, and in some instances fruit shipments are handled on passenger trains.

To the great fruit industry of the province, then, the decision of the Railway Commission upon this problem means considerable, as it is a stepping-stone to the more important requirement—that of better service in transit.

We pay high rates because of the perishable nature of our commodity and deserve, therefore, the service for which we pay. The reports now coming in from Ontario shippers are an improvement over last year, but show a serious state of affairs yet. No company obtaining its right of operation from the Government, which in reality is the people, should be allowed to so serve or humbug those who make their operation possible.

When the decision of the Board will be given, I cannot say. I hoped it would be in time to apply this season, but was advised under date of October 13th, 1913, that it will be some time yet before the question can be disposed of.

Planet Jr.




No. 16
Planet Jr
Single
Wheel Hoe,
Cultivator, Rake
and Plow

The highest type of Single Wheel Hoe made. It is light, handy, and adapted to use by man, woman, or child. Has leaf guard for close work, and a durable steel frame.

Nearly two million soil-tillers all over the world are saving time, lightening labor and getting better results by using Planet Jr guaranteed farm and garden tools. For all requirements, \$2 to \$100.

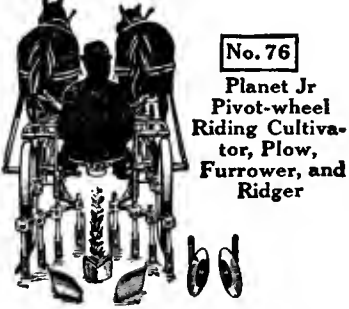
FREE Our new 72-page illustrated catalogue describes 60 tools for all kinds of horse and hand cultivation. Write for it today.

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Write for the name of our nearest agency




No. 4
Planet Jr
Combined
Hill and
Drill Seeder,
Wheel Hoe, Cul-
tivator and
Plow

This is a practical every day time-, labor-, and money-saver. It combines in a single implement a capital seeder, an admirable single wheel hoe, furrower, wheel-cultivator, and a rapid and efficient wheel garden plow. Every owner of a vegetable garden can save the cost of this tool in a single season.



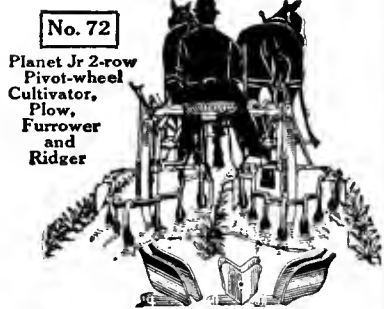
No. 76
Planet Jr
Pivot-wheel
Riding Cultiva-
tor, Plow,
Furrower, and
Ridger

A wonderful implement in extensive cultivation of corn, potatoes, etc. Light in draft, simple and strong in construction and comfortable to ride upon. Works rows 28 to 44 inches, and cultivates crops until 5 feet high.



No. 11 **Planet Jr**
Double
Wheel Hoe,
Cultivator,
Plow and
Rake

The greatest cultivating tool in the world for the grower of garden crops from drilled seeds. It has steel frame. The plow opens furrows for manure, seed, etc., and can be reversed for covering. The cultivating teeth are adapted for deep or shallow work and for marking out. Crops can be worked both sides at once until 20 inches high.



No. 72
Planet Jr 2-row
Pivot-wheel
Cultivator,
Plow,
Furrower
and
Ridger

Cultivates at one time two rows of potatoes, corn, beans, etc. in rows 28 to 44 inches apart. Works like a charm in check rows, crooked rows, and rows of irregular width. Can be equipped with roller-bearings, spring-trip standards, and discs.

Apple Shippers



Read this before disposing of your Apples

IT'S ONLY NATURAL to give your own property **THE PREFERENCE** — Blood is thicker than water.

Having no bought apples of our own, we are in a position to look after your interests. Consign your apples to us—we can take care of them for you.

Have ample storage to hold for improved market.

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For the Land's Sake

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GOOD CROPS

For Nurseries, Fruit Growers and Gardeners.

Sure Growth Compost

Makes poor land fertile and keeps fertile land most productive.

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For Spring Planting

For Satisfaction, Plant St. Riges, Himalaya and Ever Bearing Burn's
Our prices are right and so are the trees. Send for priced catalogue if you have none, also your want list for special prices on Apple Trees. We can please you.

Look over our Price List No Agents

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We don't ask you to pay us a cent until you have used this wonderful modern light in your own home for ten days, then you may return it at our expense if not perfectly satisfied. We want you to prove for yourself that it gives five to fifteen times as much light as the ordinary oil lamp; beats electric, gasoline or acetylene. Lights and is put out just like the old oil lamp

BURNS 70 HOURS ON 1 GALLON OIL

Gives a powerful white light, burns common coal oil (kerosene), no odor, smoke or noise, simple, clean, won't explode. Guaranteed.

\$1000.00 Reward

will be given to the person who shows us an oil lamp equal to this Aladdin in every way (details of offer given in our circular). Would we dare make such a challenge to the world if there was the slightest doubt as to the merits of the Aladdin? We want one person in each locality to whom we can refer customers. Write quick for our 10 Day Absolutely Free Trial Proposition, Agents' Wholesale Prices, and learn how to get **ONE FREE**.

MANTLE LAMP CO., 715 Aladdin Bldg., Montreal & Winnipeg**AGENTS WANTED**

to demonstrate in territory where oil lamps are in use. Experience unnecessary. Many agents average five sales a day and make \$300.00 per month. One farmer cleared over \$800.00 in 6 weeks. You can make money evenings and spare time. Write quick for territory and sample.

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MADE ONLY BY

TAYLOR-FORBES COMPANY

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GUELPH, ONTARIO

In conclusion, I beg to submit for consideration, the following recommendation:

(1) That an effort be made to have all navigation companies handling freight, and operating upon Canadian waterways, placed under the jurisdiction of the Railway Commission.

That power be given the Railway Commission to adjudicate claims against railway or express companies not settled in 60 days.

That the Railway Commission be given jurisdiction in the matter of fixing a penalty for rough handling and pilfering of freight and express shipments.

That fruit inspectors be also cargo inspectors.

That the express minimum be reduced from twenty thousand pounds to fifteen thousand pounds.

That, if necessary, the Railway Commission be asked to compel the railway companies to allow free transportation both ways for a man sent in charge of heated cars.

That the railway companies be asked to provide a special fruit train service from central points in Ontario to Winnipeg, during the shipping season.

Packing in Barrels**D. E. Lothian, B. S. A.**

In beginning to pack a barrel of apples, we lay in first of all what is known as the heading, which is the first layer of apples. According to their size the outer ring should consist of fifteen or sixteen, the second ring of ten or eleven, and the third or inner ring of three or four. Apples under that size will be of inferior grade, and may be packed with five in a ring and one in the centre, the centre apple should never be larger than those on the outside of it, otherwise the surface will not be smooth, and when pressure is applied the centre apple will suffer and the package as a whole will not be a tight fit. The stems, if long, should be removed and the stem end placed downward, that is to say, next to the head.

RACKING IMPORTANT

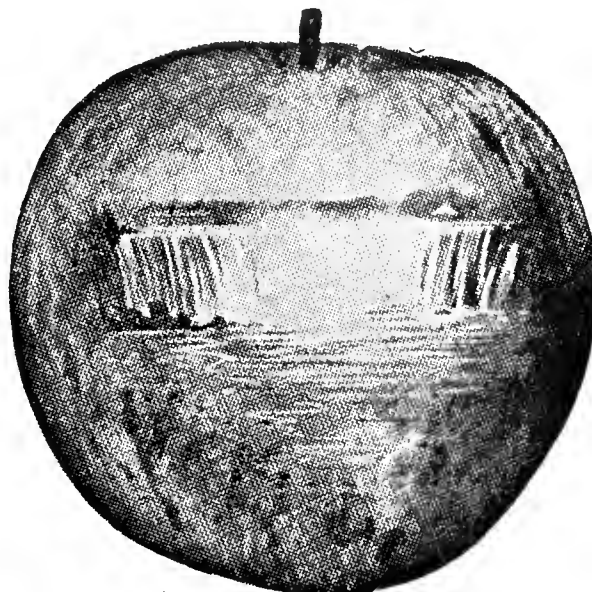
After the first layer has been placed in position the succeeding baskets of fruit should not be allowed to drop into the barrel, but the basket should be lowered close down to the layer and poured in gently. Damage is frequently done by allowing apples to drop even six or seven inches from the surface of the first layer. The damage varies with the particular variety in question. After the addition of each basket the barrel should receive what is known as racking, which consists in giving the barrel a sharp jerk. This allows the apple to settle into a good secure position, hence when the lid is nailed on there is no sinking, and consequent loosening of the package. When the barrel is nearly full a flat board should be applied to smooth the surface.

After the follower has been applied, which is the name used by apple packers for this board which they utilize to smooth out the surface, what is known as tailing may be performed. This consists in finishing the barrel by putting in the last two rows of apples, stem upwards. The top of the last row should be as nearly in line as possible with the chime of the barrel, or if anything, a little higher. The lid may then be applied and the barrel subjected to preferably a hoop press. In nailing on the hoop care should be taken not to drive the nails through so that they will project on the inside of the barrel and so damage the fruit.

"Wherever Fruit Excels, NIAGARA SPRAYS are Used"

NIAGARA

The spray that makes fruit growing profitable.
The spray that always gives results.
The spray that produces all the prize winners.
The spray used by all successful fruit growers.
If you are not getting the results you should,
don't experiment any longer—
Get in the winning row. Use NIAGARA



TRADE MARK REGISTERED

SOLUBLE SULPHUR.—The most talked of spray in America. In powder form. Dissolves immediately in cold water. Keeps indefinitely. A 100-lb. can makes more spray than a 600-lb. barrel of Solution. No leakage or loss. No heavy barrel to handle, return or pay for. Easy to mix and apply. No clogging of nozzles. SOLUBLE SULPHUR is a perfect control of San Jose Scale and all other Scales. It is stronger and better Fungicide than Lime-Sulphur Solution. It is cheaper and more efficient than any other spray. SOLUBLE SULPHUR was used by hundreds of growers in Ontario this past season with wonderful results. It will be used by thousands this year. No grower will ever use anything else after using Soluble Sulphur. Our supply is limited. We were forced to disappoint many growers last year. Order now so as to be sure and be supplied.

Remember—Soluble Sulphur is a patented product. It can only be procured from us. Let us send you further information and testimonials from growers and experts you know.

LIME SULPHUR—We will still supply the famous **Niagara Brand**.

ARSENATE OF LEAD—Swift's Brand—The highest grade only. Everybody says so.

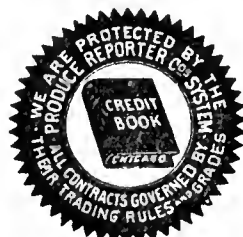
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Branch Warehouses:
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Porcupine

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OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

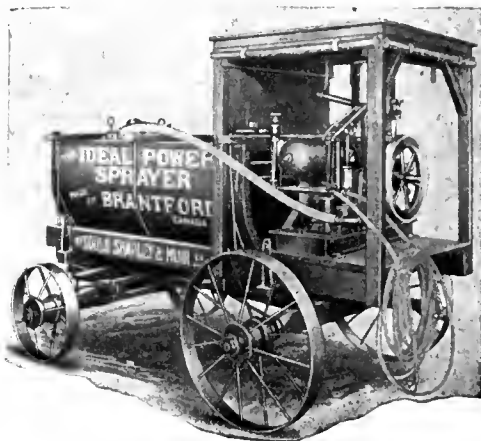
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88 Front St. East, Toronto

References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.



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We also manufacture complete lines of Gas and Gasoline Engines, Windmills, Tanks, Grain Grinders, Steel Saw Frames, Water Boxes, Pumps, etc.

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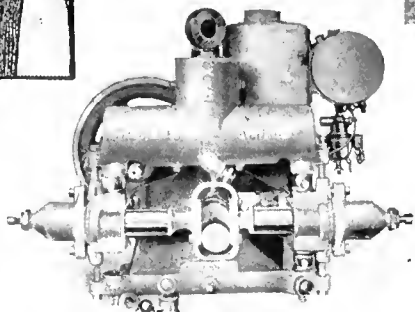
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Western King

If you have a power sprayer, EXCHANGE engine and pump for our POWERFUL UNIT MOTOR-PUMP and PROPELLER AGITATOR, or sell it and buy a whole new outfit. "FRIEND" outfits are now made in many styles, TO SUIT YOUR TASTE, in-



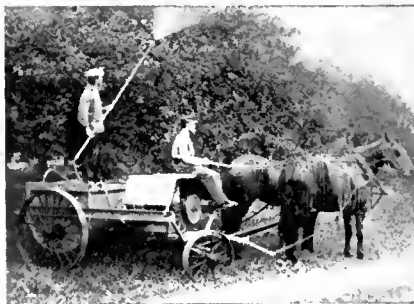
The "Friend" Motor-Pump

Mr. Fruit Grower
You have heard of the celebrated

**"Friend"
Power Sprayer**

But you have not heard of the 1914 MODELS.

**Western King
and Queen**



Western Queen

cluding motor-pumps, 4 lifts on bed without trucks, and complete machines — built in large and small sizes. The SIMPLEST, MOST COMPACT, MOST POWERFUL and FINEST WORKING power sprayers ever produced. Many Westerns sold in Canada last year to growers who are STAUNCH FRIENDS this year.

WRITE FOR CATALOG TO-DAY,
STATING REQUIREMENTS.

"FRIEND" MFG. CO., GASPORT, NEW YORK

Fruit Growers' Requests

During December Messrs. D. Johnson and G. F. McIntosh, representing the Ontario Fruit Growers' Association and a large delegation of the fruit growers of Lambton County, met J. E. Armstrong, M. P. for East Lambton, at Forest, and laid before him certain complaints regarding railway facilities and service in handling fruit shipments. The resolutions, as approved by the Ontario Association and submitted to Mr. Armstrong, were as follows:

That an effort be made to have all navigation companies handling freight and operating upon Canadian waters placed under the jurisdiction of the railway commission.

That power be given the railway commission to adjudicate claims against steamboats, railway and express companies, which have not been settled in sixty days.

That an amendment be made to the criminal code whereby handlers of perishable shipments will be liable to a fine for rough handling and for pilfering.

That fruit inspectors be also made cargo inspectors.

That where a privilege has been given by a railway company under section 317 of the Railway Act, the railway commission be given power to order the extension of such privilege.

REQUESTS REASONABLE

Mr. Armstrong said he believed the requests reasonable, and he would see they were placed before Parliament, with a view to bring about legislation that would adjust at least some of them.

Mr. Armstrong touched upon a matter that met with approval, that of nationalizing the express companies of Canada. The express companies are demanding six million dollars for handling the parcel post business to be inaugurated very soon, and Mr. Armstrong thought that the Postmaster-General should direct attention to governmental control of the express companies.

Nova Scotia

The annual meeting of the Nova Scotia Fruit Growers' Association will take place at Kentville, January 20th, 21st and 22nd. A three days programme is being prepared. The question of the control of black spot will be especially dealt with.

British Columbia

Developments in the system of fruit production and distribution in British Columbia, which may involve changes in methods now used by the orchardists, are possible as a result of a recent tour of the Pacific coast undertaken by J. Kidston of Vernon, a member of the Provincial Agricultural Commission, and R. M. Winslow, provincial horticulturist and secretary of the B. C. Fruit Growers' Association. They have recently returned from a trip which took them through American fruit growing districts extending from the boundary line south into the heart of the California citrus belt. They interviewed the officers of many growing and selling organizations and secured a large amount of valuable information covering the growing and distribution of deciduous and citrus fruits.

In the orchard districts of the Northwest the idea of close cultivation between trees is not looked upon with general favor, although this method is accepted there in

The question of selecting an Arsenate of Lead for fruit-tree spraying is an important one.

There are a great many brands on the market, but only a few of them have all the requisite characteristics which will make your spraying successful.



THE CANADA PAINT CO.
LIMITED

NEUTRAL ARSENATE OF LEAD (Paste)

This product is soft and fluffy in character and mixes readily with water and other spray mixtures, and stays well in suspension. It is very fine in texture so covers the foliage evenly and goes farther than more granular and coarser Arsenates.

Before putting our new Neutral Arsenate of Lead on the market, we experimented and thoroughly tested it out in practical use, and we are confident here is no superior Arsenate of Lead made. As manufacturers of Arsenate of Lead we have been enabled to make use of a new formula for the manufacture of a Dry, Powdered Arsenate. Hitherto Arsenate of Lead in dry form was not satisfactory but this new product has all the good qualities of a paste Lead and some advantages beside. It is lighter in gravity and more fluffy in texture and so has greater covering qualities. It can be safely carried over from one season to another without deterioration. Probably the greatest advantage is the saving effected in freight charges, as the dry Lead weighs just half the amount of the paste Lead. Ask us for prices on our Paste and Dry Arsenates before you decide on the Lead you will use this year.

THE
CANADA PAINT CO.

LIMITED

PAINT-VARNISH AND DRY COLOR
MAKERS-LINSEED OIL CRUSHERS
MONTREAL-TORONTO-WINNIPEG-CALGARY-HALIFAX
OXIDE MINES-RED MILL QUEBEC

Gladioli at Less than Wholesale Prices

AMERICA, the standard pink, 1½ in. and up in diameter, \$1.50 per 100.

TACONIC, Lively pink (perfect), 2 in. up, \$4.00 per 100.

Order now before too late. These prices are made to close out circular.

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600,000 ft. Belting for Sale, all makes, at ¼ to ½ less than regular value. Also 500,000 ft. Iron Piping, 80,000 rods new Wire Fencing, Rails, Cable, Galvanized Iron, etc., at ¼ to ½ saving. Price list free. Write to

IMPERIAL WASTE & METAL CO.

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Capital Authorized - \$10,000,000

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Double Cylinder Vertical Pump
with Bronze Plungers.

Tank is made of selected Cypress
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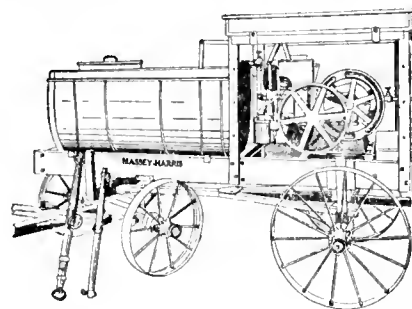
Simple, direct connection between Engine and Pump - No Sprocket
Chains to get tangled up in branches of trees.

Agitator is positive in its action and is operated from the top—No
holes through side of Tank to leak and cause trouble.

The Cab protects all working parts from the solution.

Front Wheels turn under the Frame—Handy in close quarters.

The Engine is described below.



Massey-Harris Gasoline Engines

The Ideal Engines for Spraying and general farm work as they run
in all kinds of weather and under changes of position caused
by working on side hills, etc.

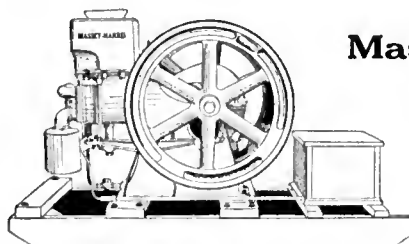
Hopper cooled with exceptionally large water space.

No gaskets or packing about the Cylinder to blow out or leak.

Valves are in Removable Cages—either can be taken out by
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Carburetor has no moving parts—is simple, effective and
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Irish, Dutch and American. Hybrid Perpetual Hybrid Teas and Climbing. Strong 2 year field-grown bushes that will bloom the first year—none better, none cheaper.

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Make your garden a blaze of glorious colour from Early Spring to late Autumn. Learn how, from

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GREENHOUSES

We Design and Manufacture

Iron Frame, Pipe Frame and All Wood

We Use Only The Best

All Heart Red Gulf Cypress Woodwork

We Also Supply

Ventilating Machinery, Bench Material and all kinds of Greenhouse Hardware

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If ordered together we send both machines for only \$13.90 and we pay all freight and duty charges to any R. R. station in Canada. We have branch warehouses in Winnipeg, Man. and Toronto, Ont. Orders shipped from nearest warehouse to your R. R. station. Hot water, double walls, dead-air space between, double glass doors, copper tanks and boilers, self-regulating. Nursery under egg tray. Especially adapted to Canadian climate. Incubator and Brooder shipped complete with thermometers, lamps, egg testers—ready to use when you get them. Five year guarantee—30 days trial. Incubators finished in natural colors showing the high grade California Redwood lumber used—not painted to cover inferior material. If you will compare our machines with others, we feel sure of your order. Don't buy until you do this—you'll save money—it pays to investigate before you buy. Remember our price of \$13.90 is for both Incubator and Brooder and covers freight and duty charges. Send for FREE catalog today, or send in your order and save time. Write us today. Don't delay.

WISCONSIN INCUBATOR CO., Box 316, Racine, Wis., U. S. A.

FREIGHT AND DUTY PAID



Progressive Jones, Says:

"Good for Your SOIL and Your CROPS"

Your soil will receive the proper plant foods to stimulate your crops and the land will also be nourished if you use

Harab FERTILIZERS

There are other fertilizers which, while they force your crops the first year, impoverish your land and eventually put it in such condition as to be almost worthless. Do not run any risks of this kind. Consider results not only for this year but for many to come.

Harab Fertilizers are true plant foods. They are good for both land and crop.

Be well advised and write to The Harris Abattoir Co. for a copy of their Fertilizer Booklet. That's the first step in the right direction.



*Years for bumper crops
Progressive Jones*

The Harris Abattoir Co.

Toronto, Canada

Limited

many instances for young orchards. It is claimed that clean cultivation has the result of permitting the disappearance of humus and thus the soil fertility decreases and the tree foliage turns yellow, the tree's fruitfulness naturally becoming less. In the Yakima and Wenatchee districts the growers have adopted the plan of growing alfalfa between the rows and have found that where this policy was in force in some years orchard production was thereby greatly increased.

In Hood River clover is grown in the orchards with similar results and the deep concern of the grower over this problem of keeping the fertility of the orchard soil is giving place to confidence. In the younger districts in Southern Oregon and Spokane the soil fertility problem as in British Columbia is not yet so acute. It has been found in Hood River that whereas formerly forty thousand dollars worth of hay was imported every year, now there is no importation of hay whatever, the green crops in the orchards being sufficient for hay purposes. This method has resulted in a lower cost of cultivation although more irrigation water has been required. It is considered that a good deal of experimental work will be necessary before it is decided absolutely how far the system of growing alfalfa or clover between the rows of trees may be followed out in British Columbia.

Generally speaking, wages are from twenty to thirty per cent. below those paid in the fruit districts of British Columbia, while the cost of materials, such as boxes, paper, orchard equipment and so forth, was from thirty to forty per cent. lower. Taxes were on the whole higher. The cost of fruit production generally, would seem to be about thirty per cent. lower than in British Columbia. This fact would lead to the conclusion, it is thought, that more general study will have to be given in this province to reducing the cost of growing, packing and marketing.

One difficulty now facing the fruit men of British Columbia lies in the fact that the American growers market their best apples, called "extra fancy," and "fancy," in the high-priced city markets at a figure about twice as high as that obtained for the third grade apples, described as "choice." These "choice" apples are sold at little above cost, the profit being made on the others; nevertheless the third grades are good apples, forming between ten and forty per cent. of the crop. They are in demand on the Canadian prairies, where an extra fancy apple is not desired.

In British Columbia the growers have no large cities in which to sell their finest apples, and the prairies do not seem to desire to pay the extra price for the British Columbia "fancy" and "number ones," consequently, in many cases the British Columbia growers have to put them on to the prairie markets at prices low enough to compete with the American "choice." The duty on apples is only thirteen cents a box, which is not enough to cover the margin of difference. Were the British Columbia growers to find a market willing to absorb the high-priced fruit it could meet the American competition and make money in the same way as followed across the line.

An effort is now being undertaken here to develop a market in Australia where, it is pointed out, there is a demand for the very cheapest apples, but then the advantage of any duty on American apples is lost.

Some attention was paid by the secretary of the B. C. Fruit Growers' Association to the question of fruit marketing. It was

Spraying with proper materials will increase both the quantity and the quality of your crops in orchard and garden.



SPRAYING A Profitable Investment

A new edition of this book has just been printed for distribution among fruit growers who wish a complete and reliable guide for exterminating insect pests. This book contains 120 pages and many illustrations, regarding the life history of the important insect pests and the best methods of destroying them. Send us your name and address on a post card, asking for the book, we send it free of cost or obligation.

Here are six reasons why it will pay you to use

THE SHERWIN-WILLIAMS CO.
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NEW PROCESS
ARSENATE OF LEAD

1.—It kills all leaf eating insects and is used and recommended by large growers in all the fruit growing districts.

2.—It is a neutral Lead and cannot cause arsenical poisoning of your trees, foliage burning, or fruit russetting.

3.—It is very fine, fluffy and floury in texture so stays well in suspension and

4.—So will give a thorough and uniform distribution over the foliage.

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6.—It is sold in both paste, and dry, powdered form, and is very economical in use.



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Offices and Warehouses:
Montreal, Toronto, Winnipeg, Calgary, Vancouver,
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ANNUAL FEBRUARY SPRAYING NUMBER

OUT FEBRUARY 1st

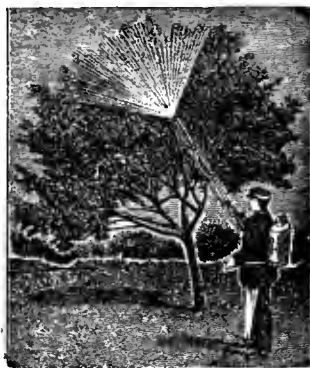
This is the largest and the most important issue of the year to the Fruit interests of Canada. Thus you will want to reserve your best and biggest copy for it and secure full advantage of this special service.

As usual special articles on Spraying, and other special articles have been secured.

Forms Close January 15th - 25th

Send in space reservation early

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Sulfur Dusters

For Fighting Every Disease of Cultivated Plants

Knapsack, Pack Saddle or Horse Drawn
Power Sprayers

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MADE BY THE COTTAGERS OF BUCKINGHAMSHIRE.

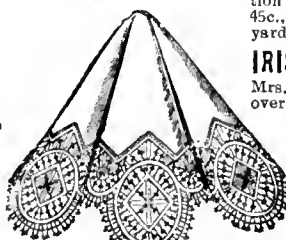
This is the old-fashioned lace made on the cushion, and was first introduced into England by the Flemish Refugees. It is still made by the village women in their quaint old way.

Our Laces were awarded the Gold Medal at the Festival of Empire and Imperial Exhibition, Crystal Palace, LONDON, ENGLAND, for general excellence of workmanship.

BUY some of this hand-made Pillow Lace, it lasts MANY times longer than machine made variety, and imparts an air of distinction to the possessor, at the same time supporting the village lace-makers, bringing them little comforts otherwise unobtainable on an agricultural man's wage. Write for descriptive little treatise, entitled "The Pride of North Bucks," containing 200 striking examples of the lace makers' art, and is sent post free to any part of the world. Lace for every purpose can be obtained, and within reach of the most modest purse.



COLLAR—Pure Linen.
\$1.00.



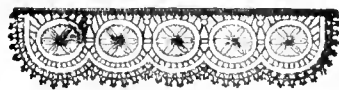
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No. 910.—Lace 1½ in. deep.

Collars, Fronts, Plaques, Jabots, Yokes, Fichus, Berthes, Handkerchiefs, Stocks, Camisoles, Chemise Sets, Tea Cloths, Table Centres, D'Oyces, Mats, Medallions, Quaker and Peter Pan Sets, etc., from 25c., 60c., \$1.00, \$1.50, \$2.00, up to \$5.00 each. Over 300 designs in yard lace and insertion from 10c., 15c., 25c., 45c., up to \$3.00 per yard.

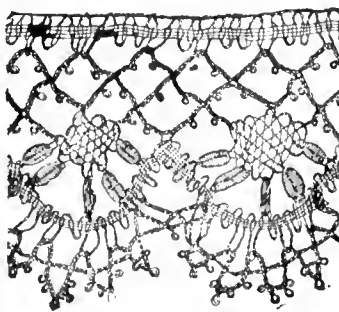
IRISH CROCHET.

Mrs. Armstrong having over 100 Irish peasant girls connected with her industry, some beautiful examples of Irish hand made laces may be obtained. All work being sold direct from the lace-makers, both the workers and customers derive great advantage.

Every sale, however small, is a support to the industry.



(1½ in. deep.) STOCK—Wheel Design.
Price 25c. each. (Half shown.)



No. 122.—80c. per yard.

MRS. HORACE ARMSTRONG, OLNEY, BUCKS, ENGLAND

FRUITLAND NURSERIES

are offering for sale a general assortment of first class Fruit Trees, Bushes, Vines and Ornamental Shrubs, etc., at very low prices. Our catalogues are just out. It will pay you to send for one.

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Fruit Machinery Co.

INGERSOLL, ONT.

Manufacturers of **Sprayers** and a complete line of

Apple Evaporating Machinery

Installing Power Evaporators a specialty

OUR LEADERS

Ontario Power Sprayer

Model 2-B, and the

Improved Pacific Apple Parer

Write for catalogue on *Spraying and Evaporating*

Dahlia Bulbs for Sale

Order early for spring delivery. All varieties of Dahlia bulbs offered for sale, being the best that money could obtain.

Send for Price List

J. T. Payne Dahlia Specialist
Campbell Street Strathroy, Ont.



Write for Free Book on Spraying

Brown's Auto Spray

use these wonderful sprayers to rid fields, fruit trees, gardens of blight, disease and insects—to make all produce big. Auto Spray No. 1—Capacity 4 Gallons. Auto Pop Nozzle throws from fine mist to drenching stream. Does not clog. 40 styles and sizes of Hand and Power Outfits. Large sprayers fitted with

Non-Clog Atomic Nozzle

only nozzle that will spray any solution for days without clogging. Fits any make of sprayer. Write for valuable **Spraying Guide Free**.

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Large stock of all sizes for the Spring trade.

Send us your order NOW and receive your supply before the Spring rush.

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FINE FIRM FRUIT

Largest crops of high-grade No. 1 fruit can be secured by using **Davies Special Mixed Fertilizers**. This applies to small fruits as well as Orchard fruits. Let us tell you how. Write for free booklet.

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WEST TORONTO
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SMALL FRUIT PLANTS

Gooseberries, Josselyn! Josselyn!! Red Jacket, Downing, Pearl, Houghton.—Currants, Perfection, Perfection!! Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Victoria.—Raspberries, Herbert! Herbert!! Herbert!!! Outbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry.—Garden Roots, Asparagus, Rhubarb. Write for Catalogue

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CHEERFUL KITCHEN



BLACK KNIGHT STOVE POLISH

A PASTE NO WASTE

No DUST No RUST

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RAW FURS

And Remit Promptly

Sixty Thousand trappers send us their Raw Furs. Why not you? We pay highest prices and express charges, charge no commission and send money same day goods are received. Millions of dollars are paid trappers each year. Deal with a reliable house. We are the largest in our line in Canada. Write to-day

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found that in the United States the organizations fall into three classes: First, where the growers simply pack and sell to local jobbers; second, where the growers pack and sell f.o.b. cars, thus retaining control of the fruit until shipped. In the third class the growers' organization have selling agencies or brokers to which they consign fruit, or else through auctions upon arrival. In either course, the fruit is generally disposed of to jobbers. There seems little evidence of direct selling to retailers as it is shown that this would demand a great credit system. No serious effort has been made to eliminate the jobber.

"The one note of doubt was sounded by the peach growers across the line, who failed to make money this year, even with the shortage in peaches. Thousands of trees are being removed in the peach belts to the south."

Eastern Annapolis Valley

Ernie Buchanan

The weather continues mild and damp, although we had a few days' sleighing in the beginning of December. Mayflowers were gathered as late as December ninth.

The potato crop is very short owing to alternate rains and frosts during the prolonged harvest. For the past few years several apple growers have found it more profitable to buy potatoes for home use than to grow them; now they are finding it a difficult matter to buy them as many of the little growers have only enough for themselves or are holding them for better prices. The present market price is one dollar and sixty cents a barrel at the warehouse. Nova Scotia supplies much of the seed of special varieties of potatoes to Bermuda farmers, who grow three crops a year for American markets. This year they have been disappointed as many barrels of their seed have been frozen in Nova Scotia, and prices have gone up.

Reports from Old Country markets are discouraging, but the low prices may be a blessing in disguise, emphasizing the fact that we need cold storage, and that it neither pays to grow or to ship number three apples. In London the number threes and spotted special twos will not make enough to pay shipping expenses, not counting the trouble and toil of growing them.

Silver black, patched, blue, and red Foxes supplied for stocking fur farms.

\$40.00 per pair paid for sound live Mink

JOHN DOWNHAM, Strathroy, Ont.



SEEDS

SURE GROWERS GOVERNMENT TESTED

Write for Catalogue

Wm. RENNIE Co., Limited

Cor. Adelaide and Jarvis Streets, TORONTO.

Fighting the Railways

The proposed abolition by the Canadian Pacific Railway of certain less than carload and concentrating privileges formerly afforded to the fruit districts near Toronto, occupied part of a session of the Railway Commission during December. The main point at issue was the question of the Railway Board's jurisdiction in the matter.

The privileges hitherto afforded by the C.P.R. were those for the movement of fruit in carload lots to distributing centres such as Brighton, Ont., their concentration into carloads there and reshipment, all at a low rate. These the railway proposes to abolish. The Canadian Pacific took the stand that the Railway Commission had no jurisdiction in the matter.

Items of Interest

Experiments with rot in apples, particularly with the dry black spots which appear on the surface of the fruit, are being conducted at St. Catharines by W. A. McCubbin, M.A., of the Dominion Laboratory of Pathology. He is inoculating perfect specimens with the rot to observe the effect. He is also treating the peach tree canker, and has discovered an apparently new rot on tomatoes which he is following up. Mr. McCubbin, who has found that many shade trees in the city are suffering from sores caused by injuries in which a fungus disease gets into the wood and eats it up, recommends painting these sores, as no fungus can thrive under paint.

I read The Canadian Horticulturist with pleasure and profit.—J. D. Murray, Saskatchewan.

**Goulds No. 423
A Great Farm
Pump for
General Use.**

Avoid Pump-Buying Mistakes

This is one of our latest types—adjustable stroke, force pump standard.

The adjustable stroke adapts the standard for connection to any windmill or pump-jack.

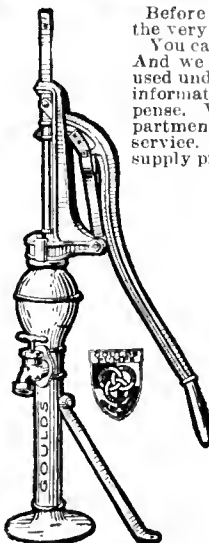
Revolving bearer top permit the lever to be set and operated at any angle with the spout.

Large air chamber gives steady, even flow at spout.

Nut and hose tube spout for connection with garden hose.

Outlet back of spout tapped for iron pipe connection.

Extra strong construction throughout. Ask your dealer for Goulds No. 423.



Before you buy a pump or watersystem of any kind, be sure it's the very one best adapted to your needs.

You can choose from over 300 types of Goulds Reliable Pumps. And we will tell you which type will give the best results when used under your particular service conditions. By getting exact information first, you'll save yourself worlds of trouble and expense. Write our Mr. Gould, in charge of our Consultation Department. His lifelong knowledge and experience are at your service. You can get his help without charge on any water supply problem.

**GOULDS
RELIABLE
PUMPS**

OUTSELL ALL OTHER PUMPS

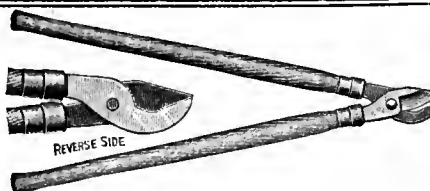
For 65 years Goulds Pumps have been preferred by pump buyers who wanted longest and most satisfactory service. As a result, today we make more pumps than any other concern.

And due to our enormous output, you pay no more for Goulds quality than for pumps of less merit. The best dealers in every locality handle Goulds Reliable Pumps. Look up the one in your section.

HOW TO HAVE RUNNING WATER

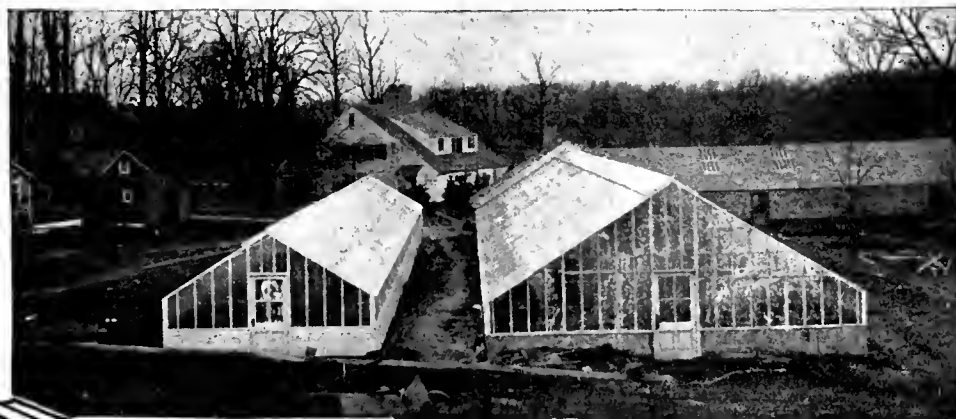
This luxury is possible on your farm. Send for our free book, "Water Supply for Country Homes." It describes and pictures the most practical systems—hand, windmill, power, and hydraulic ram, with the most desirable type of pump necessary. Write for book today.

THE GOULDS MFG. CO., W. Fall St., Seneca Falls, N.Y. Largest Manufacturers of Pumps for Every Purpose



Cronk's Pruning Shears

To introduce a high-grade pruning shear at a very low price, we are now offering direct, provided your dealer does not have them, our 25-inch No. 09% guaranteed pruner at \$1.25 per pair, via parcel post, prepaid: cash with order. CRONK & CARRIER MFG. CO., ELMIRA, N. Y.



The Greenhouse As a Paying Proposition

THE assumption that a greenhouse on a private place cannot be made to pay; or that it is an out and out luxury—is a fallacy.

By way of comparison—the man who buys a touring car and devotes it solely to pleasure jaunts and then states that "it is nothing but a continuous bill of expense," certainly is not to be classed with the one who, in addition to the pleasurable side, also uses his car to the undoubted advantage of his business, either direct or indirect.

By the same token, greenhouses can be either a delightful expenditure; a combination of pleasure and profit; or

a strictly business proposition.

The owner of the houses above makes his living by furnishing flowers and vegetables to a big city hotel, in addition to a local trade of no mean proportion.

Why don't you investigate the three above named phases and convince yourself that you ought to have a greenhouse?

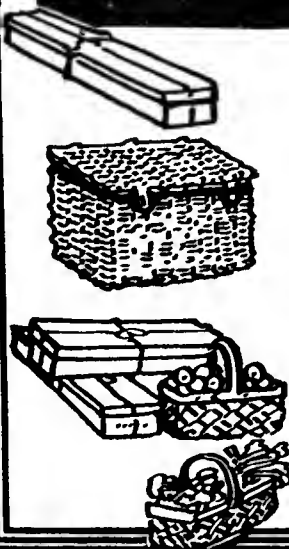
We will gladly help you in every way by sending our printed matter, suggesting places to visit, or better yet, come right to your home and talk it over. Which shall it be?

Lord & Burnham Co., Ltd., of Canada

Greenhouse Designers and Builders

New York Boston Philadelphia

Toronto, 121 Queen Street East
Chicago Rochester



FOR SALE AND WANTED

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 30 cents, strictly cash in advance.

ALL KINDS OF FARMS—Fruit farms a specialty.
—W. E. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS.—Before buying it will pay you to consult me. I make a specialty of fruit and grain farms.—Melvin Gayman & Co., St. Catharines.

RELIABLE HELP, SKILLED AND unskilled, supplied horticulturists and others. Canadian Employment Bureau, Proprietor member of B. G. A., London, England, 65½ James St. South, Hamilton, Ont.

ASK DAWSON. He knows.
IF YOU WANT to sell a farm consult me.
IF YOU WANT to buy a farm consult me.
I HAVE some of the best Fruit Stock, Grain and Dairy Farms on my list at right prices.
H. W. Dawson Ninety Colborne St. Toronto.

FOR SALE—Large Greenhouse establishment paying big dividends. Over fifty thousand feet of glass, 3 dwelling houses, barns, fruit, etc. Will sell all or part. Owner retiring from business.—Frank Whitehall, R.R. No. 2, London, Ont.

WANTED—100 Colonies of Bees; also a small Farm of 1 to 3 acres, with a cottage, in good bee pasture.—B. P. Wood, 159 Keele St., Toronto, Ont.

SALMON ARM. Shusway Lake, B.C. has the finest fruit and dairy land in B.C. No irrigation necessary; mild winters, moderate summers, no blizzards or high winds; delightful climate; enormous yields of fruit, vegetables and hay; good fishing; fine boating amidst the most beautiful scenery, and the Salmon Arm fruit has realized 25 cents per box more than other fruit in B.C. Prices of land moderate, and terms to suit. Apply to F. O. Haydock, Salmon Arm, B.C.

RHODES DOUBLE OUT PRUNING SHEAR



Cuts from both sides of limb and does not bruise the bark.
We pay Express charges on all orders.
Write for circular and prices.

536 S. Division Ave. GRAND RAPIDS, MICH.

Notice to Horticultural Societies

Give Bezzo's Famous Prize Aster Plants as premiums next spring. Prizes at New York State Fair, 1910-11; Canadian National Exhibition, 1912. Highest awards at Berlin Horticultural Society Exhibitions, 1911-12-13. Write for prices.

C. MORTIMER BEZZO - BERLIN, ONT

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Saxony - Germany
Holder of Gold and Silver Medals

Artistic Plans, Sketches furnished for all kinds of LANDSCAPE CONSTRUCTION WORK.

Ornamental Trees, Shrubs, Conifers, Hardy Perennials, etc.

ASK FOR PRICE LIST

17 Main Str. East - HAMILTON, Ont.

Phone 148

Stanton Kerr, the twelve year old son of W. J. Kerr of Ottawa, secretary of the Ottawa Branch of the Ontario Vegetable Growers' Association, was accidentally killed on Saturday, November 22nd. At the time of the accident the father was in Toronto on a lecturing tour, and the mother had gone into the city. Stanton had been riding one of his father's horses. When he went to alight his foot caught in one of the stirrups, and the horse became frightened and dashed off, dragging and mortally injuring the lad, who expired in a few minutes. Stanton was in every way a promising boy, and the highest hopes for a useful life were entertained by all who knew him.

Ontario Agricultural College

The Fruit Growers' Short Course and Packing School will be held at the Guelph Agricultural College from January 27th to February 6th, inclusive. These short courses are most valuable to experienced fruit growers and also to beginners. The dates for the packing schools, which are entirely separate from the short course proper, are February 2nd to 7th, and February 9th to 14th. The instructors in box and barrel packing will be W. F. Kydd and Mr. Leslie Smith, of the Fruit Branch, Toronto.

Those who may not find it convenient to spend the entire week in the packing school may arrange for two or three days instruction in either the first or second week.

British Columbia

Estimates made in the agricultural department at Victoria of the probable fruit crop of the interior for 1914 indicate that the fruit crop, particularly of apples, will be from one and a half times to twice as large next year, as in 1913, and one of the largest on record.

All records in the rapid transit of fruit were broken in the shipment of two cars of apples, which recently went forward to the Old Country. The apples were exactly eleven days on the journey from Vernon to Liverpool.

The suggestion has been made that the Provincial Government agricultural departments establish pruning classes in the various fruit districts and it is said that the department is now giving serious attention to this question.

A resolution will also be presented at the provincial convention urging the provincial government to appoint a permanent official whose duty it would be to conduct an educational campaign in various parts of British Columbia regarding cooperative marketing and to aid in the formation of organizations.

The provincial fruit pests inspector and his assistants have been active during the past year. In a recent fruit condemnation in Vancouver four car loads of apples from Hood River were condemned for codling moth and sent back to the United States.

The Vernon Fruit Union reports that Chinese grow fully two-fifths of the vegetables handled by the Union.

EGGS

EXPRESS PREPAID—all the standard breeds of Chickens, Ducks, Geese and Turkeys. HIGH-CLASS STRAINS. Write today for catalog describing breeds—also poultry supplies. IT'S FREE.
J. H. RUTHERFORD, Box 62
Caledon East, Ontario



Protect Your Property With Peerless Lawn Fencing

Ornamental fencing serves a double purpose. It not only enhances the beauty of your premises, but also protects it and your children, as well. It keeps out marauding animals and trespassers. It protects your lawns and flowers and always gives your property that orderly, pleasing appearance.

Peerless Ornamental Fencing

is the result of years of fence building. It is built to last—to retain its beauty and grace for years to come and should not be confused with the cheap, shoddy fencing offered by catalog houses. Peerless fence is built of strong, stiff wire which will not sag and the heavy galvanizing plus the heavy zinc enamel is the best possible assurance against rust.

Send for Literature

Shows many beautiful designs of fencing suitable for lawns, parks, cemeteries, etc.

Agencies almost everywhere. Agents wanted in unassigned territory.

The Banwell-Haxte Wire Fence Co., Ltd.
Winnipeg, Man. Hamilton, Ont.

Send your consignments of APPLES to the Home Country to

Ridley Houlding & Co.

COVENT GARDEN
LONDON, ENGLAND

who specialize in APPLES and PEARS during the Season. Personal attention, prompt account sales and remittance

Correspondence invited

The Call of the North

DO you know of the many advantages that New Ontario, with its millions of fertile acres, offers to the prospective settler? Do you know that these rich agricultural lands, obtainable free, and at a nominal cost, are already producing grain and vegetables second to none in the world?

For literature descriptive of this great territory, and for information as to terms, homestead regulations, settlers' rates, etc., write to

H. A. MACDONELL

Director of Colonization

Parliament Bldgs., TORONTO, Ont.

The Canadian Horticulturist

Vol. XXXVII

FEBRUARY, 1914

No. 2

Why, When and How We Spray

M. B. Davis, B.S.A., Bridgetown, N.S. (Manager Sunnyside Farm Ltd.)

Spraying is probably the most scientific and complicated operation in connection with fruit growing, yet how often it is conducted in a careless manner, resulting in poor success and a waste of money.

The first spraying we make is about the first of March, the dormant spray. This application is made to combat scale insects such as the oyster shell bark louse and the San Jose Scale. It consists of lime-sulphur solution of the strength 1.03 specific gravity. This has proved an efficient check in the control of the scale insects. In old neglected orchards it should be made every year.

Our next spraying, or second application, takes place just as the leaf buds are bursting out green. This time we use lime-sulphur of the strength of 1.01 specific gravity and two pounds of lead arsenate to every forty gallons of the lime-sulphur wash. The lead not only acts as insecticide, but it also increases the fungicidal value of lime-sulphur. In fact, lime-sulphur when used alone has not proved a thoroughly reliable fungicide, whereas with lead arsenate added it has given consistently good results.

It might be well to mention at this point the importance of using the triplumbic or neutral arsenate of lead instead of the acid arsenate. A very large per cent. of the burning found in orchards where lime-sulphur has been used is caused by the acid arsenate and not by the lime-sulphur. The acid arsenate is a lead which carries a much higher per cent. of arsenic oxide than does the neutral lead. Hence the reason why many are gulled into purchasing it, for the arsenic is the product which does the poisoning. But, although the neutral lead has less arsenic per pound, it is safer to use. The acid arsenate, containing as it does a certain per cent. of free arsenic or arsenic acid, is found to give unsatisfactory results. So beware of this product when you purchase.

THIRD SPRAYING

Our third spraying and also the fourth one are probably the most important ones we make for the control of apple scab. Scab is a disease which spreads by spores, and these spores will germinate and produce the disease in from twelve to twenty-four hours under proper conditions, which are heat and moisture. A

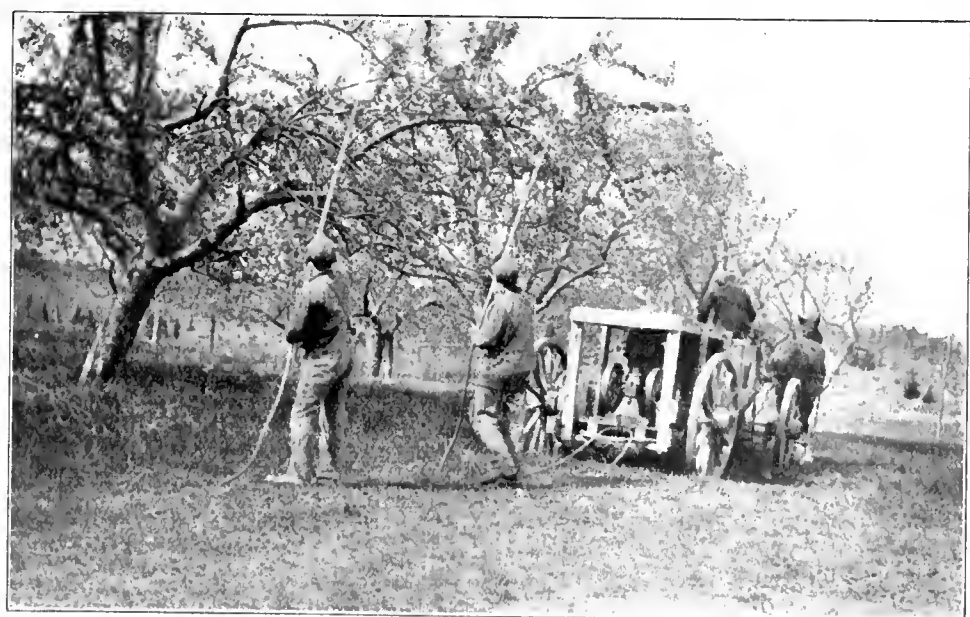
fungicide can only prevent the germination of these spores; it cannot prevent or cure the scab after it has once started. The only way, therefore, to keep fruit clean is to keep the spores from germinating on it from the time it is formed. The third spraying, applied as it is just before the buds show pink, prevents these spores from getting a foothold on the pistil or ovule. The fourth spraying, which is made just as the blossoms are falling, will keep the young apple, or fertilized ovule at the base of the pistil, free of disease. These sprayings must be made on time, and that time can only be set by the time the different varieties bloom.

Many growers find the Gravenstein an apple impossible to keep clean. Why? Because by the time the rest of their trees are in bloom this variety is out, and as they wait for the later ones before spraying, the Gravenstein is missed every time. Get after the early ones by themselves. Don't wait. Be on time and you will see better results.

It is not so much how to spray, but when to spray, that counts in the pack out in the fall. These sprayings not only assist in keeping the fruit clean, but they ensure you a good crop, for if the young apple becomes affected with

scab it withers up and falls off. A great deal of the so-called poor pollination or blossoms not setting good is nothing but scab being on the young ovules and sapping out its life. This is another reason why you should get there on the dot. Keep the young fruit and all new surface coated with spray so that no spores will get an opportunity to germinate.

The fifth spraying we make about three weeks after the fourth spraying, and this may be followed by another. Two years ago we sprayed up to August 10th, and got results from our late sprayings. The latter part of the summer was so damp that the fruit began to spot very late, and people who had spot under control during the first part of the summer became overwhelmed with it later because they neglected to spray. The apples had formed a lot of new surface for the spores to develop on, as this new surface was not coated with spray. Orchards which were sprayed well at first and which were clean in July, were dirtier in the fall than orchards neglected at first but cared for later, and it was simply on this account. Do not be afraid to keep up spraying. Let the good work go on, and if you have a damp season drive the spray pumps right along.



Up-to-date Methods as Applied in a Nova Scotia Orchard

—Photo by Eunice Buchanan.

Don't make up your mind to spray only three times, but spray just as often as you think the weather conditions demand.

If you find it impossible to spray as many as five times, omit the first two of these sprays, but never omit any of the last. In spraying, a good outfit is necessary to do the work well. If you have a large orchard, say ten acres or more, a power sprayer will pay for itself many times over. Use two leads of hose, having one man on the ground and one man in the tower. Do not be afraid of putting too much on a tree. Spray until it drips off in large drops from all over the tree. See that all parts of the foliage and fruit are drenched. In using lime-sulphur remember that more is needed than when using Bordeaux to obtain the same results. If your spray is not too strong you can drench the trees without fear of injury.

A SIMPLE DEVICE

For the purpose of ascertaining the strengths of your dilutions, you should have a hydrometer reading from one to 1.3 specific gravity. These may be obtained for seventy-five cents at any drug store. In places where the water pressure is not very great, filling a two hundred gallon tank is slow work. It may be quickened by a simple method. Elevate two one-hundred-gallon casks eight feet in the air, and connect these at the bottom with a two inch pipe. This will keep the water at the same level in both. From one of the casks lead a two-inch pipe with a shut off or gate attached. Make this long enough so that you can drive under it with the spray tank and fill up. One tap will fill a two hundred-gallon tank in two hours, while these casks run out in fifteen minutes, making quite a saving in time. The hose from the top fills the casks while we are away spraying, so that all is in readiness when we return.

The arsenate of lead is mixed as follows in a stock solution: In a one hundred-gallon cask place one hundred pounds of lead paste and mix well with water to a thin paste, add water up to one hundred gallons, making sure that all the lead paste is in suspension. One gallon of this solution then contains one pound of lead, so that this greatly facilitates the mixing and weighing of the paste when you are in a hurry some fine day. As spraying is an expensive operation, we must give attention to these little details of operation. They help to reduce the time we spend at the work and thus to increase our profits.

For our future apple markets we must look mainly to the western provinces, and to the local market in Ontario cities.
—P. W. Hodgetts.

Spraying Mixtures for Currants and Gooseberys*

L. B. Henry, B.S.A., Winona, Ont.

GROWERS of currants and gooseberries have their share of insect pests and diseases to combat. A description of some of the chief of these with methods of control may be of interest.

San Jose Scale sometimes becomes very bad on black currants. It is rather hard to stamp out entirely on account of the closeness of the canes at the base. The canes that are badly infested should be cut out and burned and



Reaching the Top Branches

Photo by S. G. Freeborn, B.S.A., District Representative, Walkerton, Ont.

the patch sprayed thoroughly with lime-sulphur at winter strength just before the buds open.

Red currants are sometimes badly attacked by green aphides, which may also be found on black currants and gooseberries. The foliage curls up and becomes a light greenish color. On the under side of the curled leaves the yellowish green plant lice may be found. The eggs of this insect are laid in late fall in the twigs and hatch out as the buds are bursting.

They are very tender at this time and the young aphids are also, and if the winter spraying of lime-sulphur is postponed until this time, many young

aphids and eggs are destroyed. The may also be controlled by such contact sprays as kerosene emulsion, whale oil soap, or tobacco extracts, but the spray must be applied before the leaves become badly curled.

The Imported Currant worm is a voracious worm, which chiefly attacks gooseberries and red currants, sometimes entirely defoliating the bushes. The eggs are glued to the under side of the veins of the leaves and hatch in four or five days into a whitish worm, which changes to a greenish color as it grows. The head is black and there are many black spots on the body until the last molt, when the body becomes grass green and is about three-quarters of an inch long. They then pupate in the ground and emerge as adults in late June and produce another brood, which usually does the most damage.

They can be easily controlled by spraying thoroughly with arsenate of lead at the rate of three pounds to the barrel, as soon as their appearance is noted.

One of the worst pests of the currant and gooseberry is the Imported Currant borer. The adult is a clean-winged moth but the worm which does the damage is a yellowish color, with a black head and numerous tubercles on the body. When the eggs hatch the young larvae bore into the cane and down the centre and spend the winter at the bottom of the burrow. Affected canes can be recognized by the dwarfed and yellow foliage and should be removed. If the renewal system is practised in pruning the loss will not be noticeable as the old canes are the worst attacked.

The Currant Stem girdler and Fournier Lined Leaf bug also attack these fruits but are not serious in Ontario.

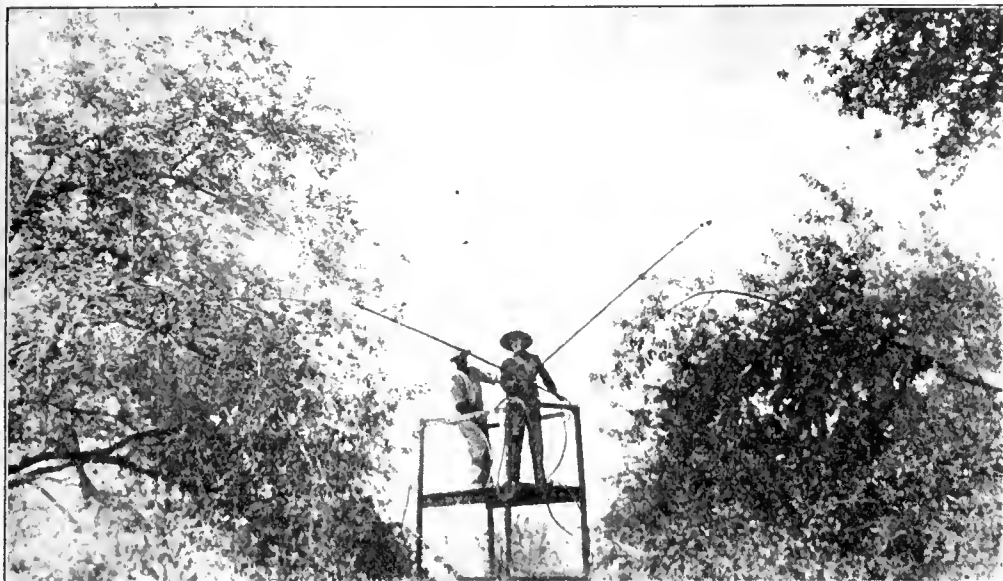
Currant Leaf Spot attacks currant and gooseberries, and if bad will cause premature dropping off of the leaves. The spot is dark around the edge, with a clear centre, on which are numerous black specks.

Currant Anthracnose attacks red and black currants, and may be found on gooseberries, but is worst on red currants, Fay's and Ruby Castle being the varieties most seriously affected, while Prince Albert is practically free from attack. Affected leaves are more or less covered with brown spots, and when the disease becomes serious the leaves become yellow and drop.

Both of the above diseases can be controlled by spraying with lime-sulphur sp. gr. 1.009 just after the fruit has set.

Mildew is the most serious disease attacking gooseberries. English varieties

*Extract from an address delivered at the last annual convention in Toronto of the Ontario Fruit Growers' Association.



Success in Spraying Depends on Spraying all Parts of the Tree Thoroughly

A power sprayer at work in the orchard of W. H. Heard, St. Thomas, Ont.

in America are the most susceptible, and it sometimes causes injury to the young growth on currant bushes.

It attacks the leaves and stems of the gooseberry, but causes the most serious damage on the fruit, producing a white furry growth and making the fruit unmarketable.

It can be controlled by the lime-sul-

phur spray. Spray the bushes when they are dormant, with lime-sulphur at winter strength. Then just before the blossoms appear spray again with a weaker solution sp. gr. 1.005. To make a complete job the bushes should be sprayed when the fruit is about half grown with the summer strength of lime-sulphur, sp. gr. 1.009.

Spraying Results in Neglected Orchards

R. S. Duncan, B.S.A., Port Hope, Ont., District Representative for Durham

IN view of the fact that so many of the old orchards in the province of Ontario were being seriously neglected, a campaign for better orchard management was commenced in the spring of 1911 in the counties of Northumberland and Durham. Four demonstration orchards, one each at Colborne, Cobourg, Port Hope, and Newcastle, which had been very badly neglected, were taken in hand for a period of three years to be treated according to the best orchard practices. The orchards were situated near the main road where they could be under observation by passers-by throughout the season so that the results of the demonstrations could be noted.

CONDITION OF ORCHARDS IN 1911

These orchards had been planted some thirty or forty years, but had been almost totally neglected as to pruning, cultivation, fertilization, and spraying. They had never been sprayed, and hence the quality of the fruit was of a very low grade—the percentage of No. 1's varying from thirty to sixty per cent. They were full of bark lice and blister mite, and had suffered severely from canker and sunscald, but it was hoped that with careful management, liberal feeding, and thorough pruning and spraying that they would respond and give satisfactory results. Two of the orchards were in sod and had not been ploughed for years.

The soil in the Colborne orchard is a light sandy loam and in the others a clay loam.

TREATMENT

The orchards were all pruned in 1911, not very severely, but more of a cutting out of the dead wood and a thinning out of the top. In 1912 the greater number of the high trees were "dehorned," as much as twelve feet being taken off. Our object in doing this was to make a more spreading tree, have the fruit borne on the lower branches and thus economize in picking. In 1913 a lot of small twigs and branches were cut out to open up the trees thus giving the fruit a better chance to color.

All cuts of one and one-half inches in diameter and over were given a coat of white lead and oil. The rough, loose, shelly bark was scraped off the trees to facilitate spraying operations. The orchards were all manured each year at the rate of ten to twelve tons of farmyard manure per acre. In two orchards the manure was supplemented by an application of two hundred pounds of muriate of potash and four hundred pounds of acid phosphate per acre.

The orchards were ploughed in each year as early in the spring as it was possible to get on the land, and then they received thorough cultivation up to the middle of June, when a cover crop of

red clover, buckwheat, or hairy vetch was sown.

The orchards were sprayed very thoroughly three times each year as follow:

First, before or as the leaf bud bursts with commercial lime-sulphur, one to ten to control oyster shell bark louse and leaf blister mite.

Second, just before the blossoms opened with commercial lime-sulphur, one to thirty-five with two pounds of arsenate of lead added per forty gallons of mixture to control apple scab, caterpillars, case breakers, canker worms, bud moths, etc.

Third, immediately after the blossoms fell with commercial lime-sulphur, one to forty with two pounds arsenate of lead added per forty gallons mixture to control codling moth and apple scab.

In spraying we used a double acting hand pump and a tank, a home-made affair, holding two hundred gallons, with a tower attachment for reaching tall trees. We used two lines of hose and two angle nozzles of the "Friend" type on each line of hose. One man was on the tower equipped with fifteen feet of hose and a rod eight feet long; the other man being on the ground with thirty feet of hose and a ten-foot bamboo rod. Two men acted as power on the pump, giving a pressure of from one hundred to one hundred and fifty pounds. All solutions were strained into the tank. The arsenate of lead was first brought into suspension before being strained into the spray tank. We always endeavored to spray with the wind and do as much of the trees as possible.

One side of the tree was sprayed as it was approached; we then drove directly opposite and sprayed the central parts thoroughly; then we completed the other side at the third stop. We aimed to cover every portion of the tree though not wasting any material. For the spray after the blossoms fell we tried to do most thorough work—our object was to fill every calyx cup. Ninety per cent. of the codling worms enter the apple in the calyx end, hence it is important to have the poison placed where it will do the most effective work. We used from five to eight gallons of mixture on each tree for each spraying.

THE RESULTS

Accurate account has been kept of all expenses pertaining to each orchard in each of the three years. All labor with the exception of pruning, which is valued at two dollars a day, was calculated on the basis of one dollar fifty cents a day per man, and a man and a team at three dollars a day. Farmyard manure was valued at one dollar a ton. These figures, it will be agreed, were quite reasonable.

In figuring out the results, no allowance was made for rental of land, as it



Spraying a Quebec Orchard

A modern power machine in the orchard of the Oka Agricultural College, La Trappe, Que.

was difficult to arrive at a fair valuation of the orchard; it differs in different localities. No account was taken of the interest on the investment or overhead charges, nor depreciation in value of the implements used.

I append herewith a tabulated statement of the expenses and receipts for the orchard of Mr. F. W. McConnell, at Colborne, in each of the past three years. The number of barrels, the percentage of No. 1 apples and the receipts are also given for the three years previous to our taking charge. This will be a basis of comparison between the orchard when in a neglected condition and after being properly cared for.

NORTHUMBERLAND AND DURHAM DEMONSTRATION ORCHARDS

F. W. McConnell's Orchard, Colborne, 117 trees—approximately $2\frac{1}{2}$ acres. Soil—Light sandy loam. Orchard 32 years old.

RESULTS

EXPENSES—	1911	1912	1913
Scraping	\$11 25		
Pruning	34 00	\$22 00	\$39 00
Painting wounds	10 28	7 05	
Gathering brush	6 75	4 00	4 50
SPRAYING—			
First	25 90	21 90	20 55
Second	15 75	15 70	13 13
Third	23 17	23 35	15 60
Cementing holes in trees ..		1 25	
Bracing trees with wire ..		1 37	
Removing dead wood and thinning suckers		90	1 80
FERTILIZER—			
Manure	25 00	30 00	30 00
500 lbs. Muriate of Potash ..	13 00	11 70	12 60
1,000 lbs. Acid Phosphate ..	11 00	11 00	16 00
Applying	1 00	1 00	1 00
Freight			2 75
Cultivation	7 50	18 00	5 70
Total expenses	202 60	178 22	174 63
Expenses per acre	81 04	71 29	69 85
Yield in barrels	331	333½	234
Receipts from sale of apples	\$749 55	\$449 89	\$493 58
Per Cent. No. 1's	87 6	80 5	82 5
Net profit	537 95	271 58	318 95
Net profit per acre	215 18	108 63	127 58

	1908	1909	1910
Yield in barrels	300	250	73
Receipts from sale of apples	\$300 00	\$200 00	\$100 00
Per Cent. No. 1's	30 60	30 60	30 60

Figures from the other orchards could be given, but the foregoing will be sufficient to show in detail the expenses and returns.

The results obtained were in striking contrast to the small and indifferent crops yielded in unsprayed and uncared for orchards of the same locality. The quality of the fruit in each of the three years was exceptionally high—the percentage of number one's being raised from thirty to sixty in 1908, 1909, and 1910, prior to our having charge, to seventy-five to eighty-seven decimal six per cent. while under our care. Further, from ninety-five to ninety-eight per cent.

Spraying to Prevent Apple Scab*

Prof. L. Caesar, Provincial Entomologist, Ontario

FOR several years I have been impressed with the great importance of spraying very thoroughly at as nearly the right time as possible. Most of the spraying that is done is not really thorough, or else it is not applied at the right time; in fact, too many men are trying to cover too much ground with a single spray outfit.

I believe in gasoline outfits for large orchards, especially for large trees. You can spray such trees much more thoroughly and easily with these outfits. Keep your machine in excellent condition; spray at the right time; miss none of the first three applications; cover every leaf and young fruit or opening blossom thoroughly. Never mind how much the tree drips. Do not stop until you are satisfied it is done right.

Instead of being discouraged by failure a single year like 1913, remember that James E. Johnson, of Simcoe, our most experienced apple grower, says he never before 1913 saw a season when good spraying would not thoroughly control scab. It is not probable if he lives for thirty years longer, as we hope he will, that he will again see another such season. I might perhaps mention here in passing that good pruning, allowing plenty of light and air circulation will help to make it easy to keep off apple scab.

SUMMARY OF RULES

The following rules are given as a guide with special reference to preventing apple scab:

First Application—Before or as leaf buds are bursting. Use lime-sulphur, hydrometer strength 1.030 (1.035 for San Jose Scale).

Second Application—Just before blossoms open. Use either lime-sulphur, strength 1.010 or 1.009, or Bordeaux

of all the apples grown in these orchards was absolutely free from any insect pest or fungus disease. Scarcely an apple could be found with a worm in it, and it was only an odd apple here and there that showed a spot of scab.

In conclusion, let me say that as a result of these demonstrations, the old orchards are being cared for in a manner as never before. Carloads of spray material and a great number of spray machines, both hand and power outfits, have been sold to fruit growers in the counties. The demonstration orchard method has proved its effectiveness as a means of stimulating interest in up-to-date methods. Special requests now reach my office asking me to take charge of an orchard for a period of years.

mixture 4.4.40 formula, and to every forty gallons of either wash add two to three pounds arsenate of lead.

Third Application—At once after the blossoms have nearly all fallen (say 80 per cent. off). Use lime-sulphur 1.008 and two pounds arsenate of lead to every forty gallons.

The second and third applications may begin with early varieties, as the bloom on these opens and drops first.

Fourth Application—About two weeks after bloom falls. Use the same mixture as for the third application. This should be applied in the St. Lawrence Valley on varieties subject to scab every year, but in most parts of the province may be dispensed with, if we have fine warm weather beginning a week or ten days after the third application.

Autumn Application—These should be applied only if the weather becomes wet or foggy and cool the latter part of August or early in September. Use lime-sulphur 1.008 or Bordeaux 4.4.40.

Note.—Lime sulphur 1.030 hydrometer reading, commercial lime-sulphur, one gallon, water nine gallons. Lime-sulphur 1.035 hydrometer reading, commercial lime-sulphur one gallon, water seven and one-half gallons. Lime-sulphur 1.010 hydrometer reading, commercial limesulphur one gallon, water twenty-nine to thirty gallons. Lime-sulphur 1.009 hydrometer reading, commercial lime-sulphur one gallon, water thirty-two to thirty-five gallons. Lime-sulphur 1.008 hydrometer reading, commercial lime-sulphur one gallon, water thirtyseven to forty gallons.

I believe that lime and sulphur puts a bloom and a freshness on apples that you cannot get from Bordeaux, and I believe it is a greater stimulant to the fruit and the apples will hang on better.—M. C. Smith, Burlington, Ont.

*Extract from an address delivered at the annual conventions of the Ontario and Nova Scotia Fruit Growers' Associations.

Spraying Suggestions

Rev. Father M. Leopold, La Trappe, Que.

BE thorough. This is one of the essentials in proper spraying. Do not leave a tree until you have covered it entirely with the spray solution, trunk, branches, and foliage. With a good angle nozzle it is very easy to drench the leaves from underneath and on top. Each tree should receive a liberal quantity of the spray mixture. I never leave a tree before seeing the solution dripping from the leaves. In spraying for the codling moth it would be better to use the drive type nozzle.

Get good constant pressure from your spraying machine. The manner in which spraying is done determines very often the quality of the crop of fruit that you may produce. The very best results in spraying are hard to obtain with the use of poor machinery. Power spraying is bound to become one of the best factors in the management of the modern orchard. Power sprayers are capable of giving a pressure impossible with a hand machine. Any one who has worked the handle of a barrel pump hour after hour knows that with its use a pressure of more than one hundred pounds is almost out of the question. Our modern gasoline outfits will easily maintain a pressure of one hundred and fifty to two hundred pounds and more with three leads of hose.

Do not ask one machine to do the work of two or more. Generally speaking, only two acres a day can be well sprayed with one power machine, allowing that nine tanks can be applied in a day. Allowing also the maximum time of ten days for the calyces to remain open, only twenty acres of orchard can be treated with one machine.

A GOOD AGITATOR REQUIRED

Have a good agitator fixed to your pump and outfit; the agitation of the liquid in the tank is an important matter. In the case of most of our sprays, like arsenate of lead and bordeaux mixture, the individual particles that make up the fungicide or insecticide, are suspended in the water. Unless the liquid is kept well agitated, these particles will settle in the bottom of the tank, thus rendering the mixture in the top of the tank weaker than it should be, and that in the bottom stronger, possibly too strong for the foliage. The use of soap to retard settling of certain arsenicals is said to be beneficial. Avoid all haphazard methods in spraying, and you will be well repaid for the trouble. It is not sport indeed to handle lime-sulphur wash in the orchard; but if you intend to make things good, then take the trouble to see for yourself that everything is ready for each spraying. Personally I enjoy spraying, no matter what

sort of spray mixture I use, if I feel that by my efforts I am saving my crop of apples.

Prof. J. R. R. Parker, in a practical article in *Better Fruit*, has shown that the addition of soap to arsenate of lead will help very much in keeping this valuable insecticide in suspension for a long time. He summarizes the whole matter in the following lines:

"The addition of common laundry soap at the rate of two bars to fifty gallons, to an arsenate of lead mixture, retards the settling of the arsenate of lead, only half as much settling out of a soap mixture in fifteen minutes as settled out of a non-soap mixture in the same time. Above a certain quantity, the amount of soap used appears to have little influence upon the amount of set-

ling. Two bars to fifty gallons is about the least to be used, and in practical work it would be safer to use three bars to every fifty gallons. Whale oil soap gave slightly better results than the more expensive laundry soaps. By the addition of soap a more even distribution of arsenate of lead was secured, and the amount left in the bottom of the spray can was reduced to about twenty-five per cent."

As we have obtained very good results in following out Prof. Parker's advice, in spraying our orchards at La Trappe, I can not help saying it would be a good thing for others to try also.

It is more important for almost every disease that the spraying should be done just before rain rather than after. The rain won't wash it off, provided it has dried after it has been put on.—Prof. L. Caesar, O'A.C., Guelph, Ont.



Rev. Father Leopold, Past President of the Province of Quebec Fruit Growers' Association, under a Fameuse Apple Tree in the Orchard of the Agricultural College at La Trappe, Que., where Thorough Spraying is Practised



A Well Sprayed and Cultivated Orchard

Formerly the property of Mr. A. E. Sherrington, Walkerton Ont., the well-known Institute speaker.

The Peach Tree Borer---Methods of Control*

L. Caesar, B.S.A., Provincial Entomologist, Ontario

THE following are the chief insects attacking the peach in Ontario:—Peach-borer, Lesser Peach-Borer, Plum Curculio, Fruit-tree Bark-beetle or Shot-hole Borer, and San Jose Scale. There are a number of minor insects sometimes found but doing very little damage, such as Green Peach Aphis, Black Peach Aphis, Peach Twig-borer, Tarnished Plant Bug, and Red Spider.

The Peach Borer when full grown is a rather stout, cream colored or yellowish larva about an inch long. It nearly always attacks the trees just at or slightly beneath the ground. Frequently it is necessary to remove the earth a little around the trunk to be sure whether one of these insects is present or not, but usually its presence can be ascertained by seeing the dirty gum mass that exudes from the part where it feeds. The injury is caused by the borer or borers (there may be several to a tree), working just beneath the bark and girdling or partly girdling the tree. A tree thus affected becomes sickly in appearance somewhat as if attacked by Yellows, and may die the same season or be killed by the succeeding winter. Young and old trees are alike attacked. Fortunately in a great many orchards this insect is very scarce, but this is not true of all districts, and in some it is far the most destructive and difficult enemy the peach grower has to contend with. It often seems to be worst in districts where there are comparatively few peach orchards.

PLANTS ATTACKED

In addition to the peach it attacks to some extent the plum, cherry and apricot,

but the peach is the favorite. To intelligently understand the methods of combating the pest it is necessary to give briefly its life history:

The winter is passed as a partly grown (usually about half grown) larva beneath the bark. In the spring, with the return of warmth, this larva begins to feed ravenously and increase rapidly in size. By the end of June it is usually full grown, and then leaves its tunnel or burrow to form a brown cocoon on the outside of the bark or on the ground close to the trunk.

About the end of July this pupa changes into a pretty little steel-blue moth, about an inch long, looking to most people more like a wasp than a moth. The female has around her abdomen a broad orange band that makes her conspicuous. Moths may be found from about August first to the end of September. They soon lay their eggs, placing them on the trunks, branches, leaves and even weeds growing close to the trees. In about ten days these hatch and the tiny borers drop to the ground, and work their way into the soft inner bark through crevices. Here they feed on the inner bark against the sap wood. At first little brownish saw-dust-like eastings are thrown out where they feed, but after a time gum exudes. Large masses of this may sometimes be seen. Gum, of course, in peach trees, tends to be produced by any wound especially in the early part of the summer. There is but one brood a year.

MEANS OF CONTROL

There is no easy means of control and many that are advocated are useless or dangerous to the tree. The best method I know of is to combine the practice of

digging out the borers by means of a knife or wire with mounding up the earth around a tree or wrapping the base of the trunk with paper. The digging out with a knife should be done twice a year, first about the end of May, so that as few borers as possible may escape to transform into moths and lay eggs, and again about the end of October to destroy the new larvae. Mounding up the trees with earth to a height of about ten inches has been found very useful. Such trees are freer from injury than unmounded trees. The mounding also causes the borers to attack nearer the top of the mound instead of down at the crown so that when the earth is removed their presence can be easily seen, and they can be readily killed with a knife.

The mounding to be of value must be done about the end of July and left on until about the middle of October, that is during the period when the moths are flying around and eggs being laid and hatched. Wrapping with paper may be substituted for mounding. Two or three ply of common newspaper placed around the tree to a height of about eighteen inches is very satisfactory. This should be tightly fastened with a cord at the top and loosely the rest of the way down. To secure against larvae getting in below it, a little of the earth should first be removed to let the paper lower down and then this earth heaped up about four inches around the base of the paper. Common building paper is good and is more durable. Tar paper is often used but may do some damage to the trees. The mounds should be replaced to avoid danger of winter injury.

VARIOUS WASHES

Many kinds of washes have been tried to keep out the borers. Most of these are either useless or dangerous. The only two that have given fair satisfaction are first ordinary gas tar, and asphaltum. The former of these has been known in some cases to injure the trees. The latter is highly recommended by a California entomologist, who says that in four years it has done no damage whatever and has given excellent results. I have not had an opportunity to test asphaltum. It is a cheap substance costing, I think, from two to five cents a pound and should be procurable through any of the wholesale drug stores. It is applied warm with an old paint brush. In applying, remove the soil to a depth of about four or five inches, then cover this to a height of about six inches above ground. It is better to put a light coat on first. This dries or hardens almost at once, then put on another coat so that there will be a good unbroken coat all around. It is necessary to re-touch the part each year. Some sort of heater is necessary to melt the asphaltum or keep it liquid when melted.

*Extract from an address delivered at the recent annual convention of the Ontario Fruit Growers' Association.

Plants and Their Insect Pests

R. A. Tillett, Hamilton, Ont.

MANY plants, whether grown for ornamental or for utility purposes, and whether grown under glass or in the open air, are threatened during the spring and summer months with insect pests of various kinds. The first thing to do when a plant is not thriving is to decide what disease or insect pest it is that is injuring it. The next thing is to know what is the right antidote to apply. If we make ourselves masters of these matters, the rest should be easy of accomplishment.

One of the greatest enemies of every gardener is the great family of aphides. Nearly all plants, whether grown in the garden or under glass, are subject to the ravages of these pests. The aphides are known by a variety of names, such as plant lice, green or plant fly, and are often named after the plant on which they particularly live, while the disease they produce is often called "blight." Aphides are provided with a mouth, and they damage our plants principally by sucking out the sap and so weakening its vitality. These insects multiply at a surprising rate owing to the fact that the young attain the age of reproduction after about ten days.

Certain kinds, such as rose aphid, attack not only the leaf but the young shoots of the plant. Other kinds of aphid—the bean aphid, for example—will attack the fruit pods, while others, the woolly aphid, attacks the roots, stems, or twigs. Plant lice migrate from plant to plant, and some can live both above and below ground. Towards the end of the year, as cold weather comes on or food becomes scarce, males as well as females are produced, the females depositing their eggs at the base of the buds and on the stems and leaves of the plant. These eggs remain over winter, hatching into larvae in the early spring.

In addition to the green aphides there are the blue and red kinds, and the black aphides commonly found on chrysanthemum plants. Then there are quite a number of other insects, such as the mealy-bug, the red spider, and the thrips, which, although small, are none the less voracious in their habits. The amount of destruction they can do in a short space of time if left unmolested is astonishing. Our common foe—the slug—must not be overlooked.

DISTINGUISHING POINTS

The aphides make up in numbers what they lack in size. They may be readily identified by their rather long antennae, their soft pulpy bodies, and conspicuous round eyes. They are found on the rose bush usually crowded together on the under side of the leaves and smothering the young buds and flowers.

The mealy-bug has a scaly body and derives its name from its being covered with a white powder.

A tiny little insect is the red spider, which is really a mite and so small that it may easily escape detection; it generally goes by the name of the red spider. It is not until they reach the adult age that they acquire their red color, for in their younger stages they are usually yellow or green. The red spider only attacks plants—especially violets in frames—when the soil is too dry. If the soil is kept moist and the plants given a good syringing with water, the red spider will disappear.

Thrips are generally associated with corn where many species attack the inflorescence. In hothouses we find them destroying the leaves of plants, and to distinguish them from the aphides or "green fly," they are often called "black fly." Thrips have suctorial mouths, rather long bodies, and are winged.

Slugs inhabit the damp shady parts of gardens and greenhouses, and feed at night. They are found under old rubbish heaps, under the bark of decaying trees, and in similar places. They lay numerous eggs in decaying vegetation, and are fond of attacking tender, young plants, such as lettuce and peas. The most effectual way of ridding a garden of them is to gather them up and destroy them, but if numerous, the best course is to dig in one of the advertised insecticides.

Another effectual way of dealing with them is to fork in ground lime, using of the latter four ounces per square foot.

OTHER DISEASES

We notice on certain plants diseases known respectively as "rot" and "rust" and fungus—diseases which require special treatment. Fungus is usually brought about by too much watering; it attacks the stems of seedlings. It is this that causes potato disease and the mildew of the vine. The same mouldy growth is found on decayed bread, preserves, and other household provisions.

The destruction and prevention of garden pests and plant diseases is of the utmost importance, and a consideration of the most efficacious and economical remedies brings its own reward.

Practical experience of this subject among a great variety of plants has taught me the use of several excellent remedies which, if properly applied, are beneficial in the distribution of aphides. One of the best washes I know of that can be used is obtained from dissolving six pounds to ten pounds of soft soap in one hundred gallons of soft water. When the solution is thoroughly mixed let this be freely sprayed on any plants on which aphides are found. The soft soap blocks up their breathing pores and quickly destroys them. This solution can be used in any less proportion, according to requirements.

For black fly on cherry and for all



Begonia Gloire de Lorraine

This beautiful plant measured three feet across and was grown at Castle Loma, the residence of Sir Henry Pellatt, Toronto.



A Collection of Wild Flowers as Gathered, near Peterboro, by an Enthusiast

Owing to the ignorance and carelessness of the public many of our native wild flowers are already almost extinct. Can not the Ontario Horticultural Association and the local horticultural societies take steps to preserve them?

those species which produce a copious flow of honey dew, quassia is a most useful ingredient to add. It acts as an astringent to the leafage and cleans it of all the honey dew and excreta formed by aphides. The quassia chips should be boiled and the extract added to the soft soap wash.

For those aphides which attack the roots of plants, there is no better cure than bisulphide of carbon. Inject about one-quarter ounce to every four square yards. This substance being both a deadly poison and highly inflammable, care must be taken in its use. The vapor of bisulphide of carbon liquid used in the beekeeper's "smoker" is another good remedy for green fly, and does not injure even delicate flowers.

In all cases aphides should be attacked directly they show themselves, especially when the species of aphis has the habit like the plum aphis of curling up the leaves and so protecting themselves from the spray.

For the destruction of mussel scale, woolly aphis, mealy-bugs, thrips, and red spider in glass houses, there is no more effectual remedy than fumigation with hydrocyanic acid gas. Nursery stock will be freed from insect enemies at all stages if fumigated with this poison.

The materials used for fumigation with hydrocyanic acid gas are: First, potassium cyanide of ninety-eight per cent. purity; second, sulphuric acid of a specific gravity, not less than one decimal eighty-three; third, water, four jars and a glass measure. The following propor-

tions of cyanide of potassium, sulphuric acid, and water to be used, and the amount of space per unit of cyanide are recommended, viz., One ounce of cyanide of ninety-eight per cent. purity to every two hundred, or three hundred or five hundred cubic feet of space respectively.

The amount of cyanide to be used necessarily depends to some extent on the character of the plants to be fumigated, and their strength, whether they are dormant or active, evergreen, or deciduous, and on the season. With tender plants one ounce of cyanide will serve for five hundred cubic feet of space, while hardy plants may be treated with one ounce of cyanide to two hundred cubic feet of space.

The first step is to render the glass house or other place to be treated as air-tight as possible. The sulphuric acid must then be very carefully and slowly poured into the water, which may be put into a jam jar or disused crock. Wrap the cyanide of potassium in thin blotting paper, which should then be dropped into the sulphuric acid. The vessel containing the solution should be placed within reach of a window so that the operator can drop the cyanide of potassium into the diluted sulphuric acid at the end of a long stick or lower it by means of a string and pulley. The window must be immediately closed so that the operator escapes the fumes. See that the door is already closed tightly, and all chinks filled with rags or paper, and that the window shuts close. It is important that the fumes should be dis-

tributed into all parts of the house. This can be effected by an arrangement of fans which can be worked from the inside.

Fumigation should be carried out in the evening and not in a strong sunlight. The plants should be dry and the temperature between fifty to sixty degrees. The work must be done by a skilful operator, for the fumes of cyanide are deadly poisonous.

The place which has been fumigated should be kept closed for an hour. The windows and doors should be opened from the outside and no one should enter until another hour has elapsed. When opening the windows after fumigation, be careful that no escaping fumes of the cyanide are inhaled. It is safer not to fumigate plants which are in bloom.

OUTDOOR PLANTS

It is of the utmost importance to remember that both cyanide of potassium and hydrocyanic acid gas are highly dangerous poisons. The cyanide should be kept in a stoppered bottle labelled "poison." The gas generated must on no account be inhaled.

Fumigation with cyanide will destroy all forms of insect life, except the eggs of the woolly aphis. Where there has been previous trouble with these pests, the treatment should be repeated in about ten days. Eggs of the apple mussel scale are also unaffected by gas of the strength mentioned.

Fumigation with tobacco is a simple and effectual means of exterminating many kinds of insect pests, and has the advantage of being harmless to those using it. In employing this method of fumigation, procure first of all a wire basket about twelve inches wide and say six inches deep, and fasten to each corner a strong wire with which to suspend it. Into the bottom of the basket throw a few hot cinders, and over them a handful of charcoal. Swing the basket about for a few minutes until there is a good red fire. The best tobacco to use is common shag. When using it get a handful of wet litter from the stable and chop it into pieces about an inch long, and fix well with the tobacco. Then place the whole on the fire and give the basket a good swing in the air. The smoke will fill the greenhouse in a few seconds. Hang the basket in the house, and should it burst into flame, damp it. All plants in flower should be removed. Repeat this exterminator in two or three days in the evening, and in the morning give plants a thorough syringing with clean water.

Moss roses are, if anything, hardier than most of the hybrid perpetual bush roses, almost as hardy as the Japanese or Rugosa roses.—Wm. Hunt, O.A.C., Guelph, Ont.

Starting and Growing Plants Indoors

Henry Gibson, Staatsburg

NOW is the time to sow seed of early vegetables and annuals that you intend to grow during the summer. Of course you have looked over the catalogues, and selected just what you want in order to prevent delay and consequent disappointment.

If you have your hotbed prepared you can sow your seed at once. Sow the seeds in rows about three inches apart, and cover very lightly. Deep covering is a thing to be avoided, as is sowing too thickly. Save some of the seeds for a second planting. If the seedlings come up too thick and crowded, they will be unable to get sufficient light and air to develop into strong, sturdy plants. Fairly large seeds, as cabbage and lettuce, may be covered an eighth of an inch or so, but very small seeds should be pressed into the soil with a smooth, flat piece of wood and just covered from sight. This treatment applies to most seeds, whether they be started in the hotbed, greenhouse, or living rooms.

HOUSE CONDITIONS

There are many amateurs who lack both hotbed and greenhouse. They must make the most of the conditions that obtain in the house. Even then there is no need to despair, for with a little thoughtful preparation very fine plants can be raised under such adverse conditions. The equipment needed to accomplish this is of the simplest, and incurs no very great expense.

A light, sunny window where there is room for a generous table or shelf, and where the temperature is not likely to drop below forty-five degrees on average nights, is the first essential. An occasional drop below forty will not prove fatal, but each time this occurs it means the progress is just so much retarded. If repeated at all frequently, it will be attended with very unsatisfactory results.

GOOD SOIL NEEDED

The next essential thing to light and warmth is soil, one light and porous being the most satisfactory. No doubt you have some stored in the cellar. Turn this over and ascertain its "physical condition." Richness is no advantage, in fact it is often a drawback. A soil that will retain moisture, and at the same time be porous enough to allow any surplus moisture to drain off at once and which will not tend to form a crust, is the most important factor in success with seeds. If your soil is not in this condition you can easily make it so by the addition of leaf mould or very old spent manure and sand.

If you are not able to get soil in such a condition as this, better purchase a bushel or two from the local florist, but whatever you do have it in just the right

condition, for "well begun is half done," and with proper soil half the trouble of raising seeds is overcome.

SUITABLE BOXES

From your grocer you can get a few haddock boxes, which are of a very convenient size for this purpose, and have the advantage of being very light. Failing these, you can get some cracker boxes. These sawed lengthwise into two inch sections and bottomed so that narrow spaces, say half an inch, are left between the boards, will provide you with the most useful of boxes for starting vegetable and large flower seeds.

For very fine seeds, such as begonias, heliotrope, and petunias, a few seed pans—which are easily obtained from any florist for a nominal sum—are more convenient to handle. Cigar boxes are useful for this purpose, but they are apt to dry out too quickly.

ENSURE GOOD DRAINAGE

The matter of thorough drainage is so important that besides having porous soil and open-bottomed boxes, still further precaution should be taken by filling the boxes about one-third full of some coarse material. The coarser pieces of soil or sphagnum are the most desirable for this purpose. On this place enough of the prepared soil to come just a little below the edge of the box, so that when water is applied later it will not run over the top. Press the soil down in the corners and along the edges firmly with the fingers and level and firm off the surface.

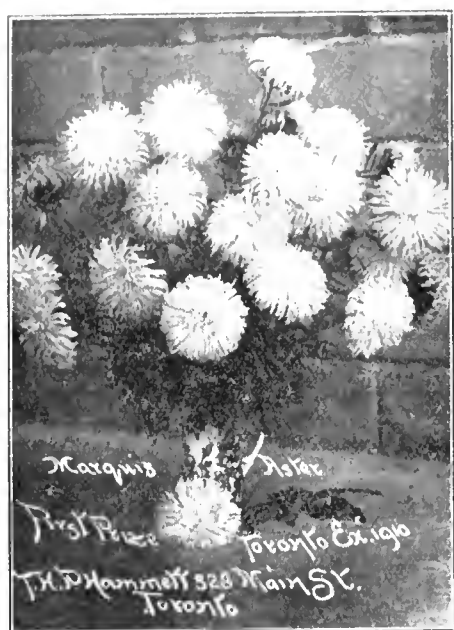
Plenty of moisture in the soil is necessary to ensure good germination. Give the boxes a good soaking the day before planting, or place them in a sink or tub after planting and let just enough water soak up through the soil from the bottom to moisten the surface. This is indicated by the soil turning a darker color. Let them drain until all drip ceases before placing them where they are to remain until the seedlings appear.

The next problem is to get the seeds to come up strong. This should take place in anywhere from four days to as many weeks, according to variety. The surest way of doing this is to apply what florists term "bottom heat." Where steam, hot water, or hot air radiators are installed this is easily arranged. Simply place the seed box over it, elevated on two or three bricks. Otherwise the kitchen range may be utilized or an oil heater may be brought to serve a useful purpose. Care should be taken in the latter case to have a piece of metal between the direct heat of the flame and the box, which should be far enough from it to prevent it getting more than nice and warm.

Such a degree of heat as is hereby obtained will tend to dry out the soil very rapidly. This may be counteracted to some extent by placing panes of glass over the boxes, raised about a quarter of an inch at one end. Until the seeds begin to break ground they are as well kept



Phlox and Petunias in the Garden of Mr. Jas. Gadsby, Hamilton, Ont.



Prize Winning Asters

in the dark as not. If they are placed where the sun strikes them directly they should be shaded with sheets of newspaper laid on the glass covering. The minute they are up they should receive all the light possible and be kept near the window.

From the time the seed leaves appear until the seedlings are big enough to transplant is the critical period of the plant's growth. Prepared as suggested, the boxes will need no further watering until the seeds have germinated. If watering really appears necessary, use the sub-irrigation method as you did when preparing the boxes for sowing. As the seedlings develop care should be taken not to over-water, as they will do better if kept on the dry side. When watering is done, however, it should be done thoroughly, and again sub-irrigation is the method to be adopted. In this way the soil is saturated through, the seedlings are not bent over by the force of water, nor the foliage left wet to start damping off. Where rooms are steam or hot air heated, some difficulty will be experienced in keeping a normal degree of moisture in the atmosphere. This unfavorable condition may be to a large extent overcome by giving all the fresh air possible and evaporating water near the plants, shallow flat pans being best to use for this purpose.

In admitting air be careful to avoid cold draughts striking plants. In many cases it may be convenient to admit air through an adjoining room, or to put a layer or two of newspapers, which are splendid non-conductors of heat or cold, between the window and the plants. While most of the seeds sown will do nicely as suggested in a night temperature of forty-five to fifty degrees, with a rise to sixty or seventy degrees during

the day, there are several that require fifty-five to sixty degrees at night to do as they ought. These include tomatoes, peppers, egg plants, melons, cucumbers, and such heat-needing plants as begonias, salvias, and heliotropes. These, however, may be brought along after the early vegetables. For instance, if cabbage and lettuce seeds are planted in February and tomatoes and peppers a month or so later, they will be sprouted about the time the former are transplanted, and can occupy the space thus made vacant. By the time these are ready to transplant the earlier vegetables will be ready to go to the cold frame, and in many localities into the garden, to make room for the newcomers.

All this may seem a lot of trouble, but when one has spring vegetables and flower beds weeks ahead of neighbors who have not troubled at all, you will feel amply repaid for having started your seeds in the house windows.

Asters (*Callistephus Chinensis*) "Marquis"

The aster is generally known as one of the most beautiful of all our annuals, as well as one of the easiest grown, when its requirements are known. It will grow in any good garden soil, but is best in a rich loamy soil. The plant may be raised from seed, any time from the beginning of March to the end of May, and good results obtained.

The seedlings should not be allowed to become crowded at any time, but as soon as large enough to handle they should be transplanted singly in boxes or in beds, and as the season advances, about the end of May or beginning of June, they should be planted where they are intended to bloom, the ground having been previously prepared and manured. The planting should be carried out, if possible, in showery weather.

The plants require a lot of room. They should never be less than one foot apart for Daybreak, Hohenzollern, and Queen of the Market, and one and one-half to two feet for Semples, Vick's Branching, and similar varieties. At no period of their growth should the plants be allowed to suffer for want of moisture. I prefer to keep them moist by a judicious use of the hose. During a dry time use the hose once a week. When the plants are about one foot in height, they should be given a light sprinkling of fertilizer, hoed into the soil. The plants should be watched for aster bug. The only relief known to the writer that can be recommended is hand picking. All sprays tried so far have to be handled with such extreme care that it makes the remedy as bad as the pests.

As soon as the flower bud shows, it is well to remove all secondary buds,

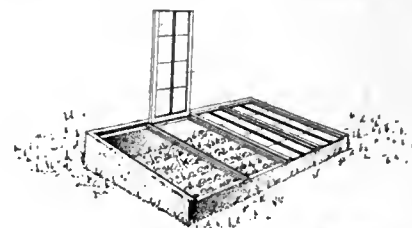
leaving only the tip or crown bud to each branch. About one week later give a dressing of pulverized sheep manure, and keep the hoe going freely, as long as it is possible to get among the plants.

Hot Frames

R. B. Rose, Peterboro, Ont.

A hot frame is just the same kind of a structure as the cold frame, but is placed upon a quantity of fermenting manure. To prepare this manure, get all you can from the nearest horse stable; make it into a good sized heap; water well if dry. Leave it for a few days until fermentation sets in; then turn it over, watering again if you think it necessary, that is, if it appears to be dry. The idea is to get the manure into an active and uniform fermentation and have it continue for some time after putting the soil in it.

Use the same position for the manure heap as for a cold frame. Have the heap about one to one and a half feet wider than the frame, with a depth of from one and a half to two feet; tramp it down good and firm, then place the frame on top, and put in the soil to the



A Hot Frame Made of Cement

depth of, say, three or four inches. Throw some manure up around the outside of the frame. This will help to hold in the heat. Put on the glass and let it stand for four or five days, when the heat should be even. I would advise a thermometer placed in the frame where it can be easily seen. When the temperature falls to about seventy-five degrees seed can be sown. At night do not allow the temperature to fall too low, but keep it as near sixty degrees as you can. It should not go below forty-five degrees at any time. In sowing seeds, sow them the same as in a cold frame. At first keep a small opening in the sash to allow the steam caused by the manure to escape, otherwise a damp mould will get on the earth or the seedlings will rot.

Keep all seedlings that come up first by themselves, and the ungerminated ones keep well under the glass; give the seedlings that are showing up more light and ventilation. When they get a little stronger take the flat out of the frame and place in the warm sunlight, so that the young plants may harden before transplanting out in the open beds. Vegetables or flowers can be started in either of the frames, and one can obtain much satisfaction from them.

Pergolas in the Garden

A. V. Main, Ottawa, Ont.

In our Canadian gardens the use of pergolas is as yet limited. Some have been erected that have not been a success. Others again see fit to criticize

Many people construct pergolas of cedar or wire material and have a poor pathway also. Cedar in its untrimmed state soon looks shabby and is of short

down two sides. There are twelve columns to a side. Beams six-inch by four-inch are placed parallel on the top of the column. Cross rafters are then placed overhead two feet apart. These are twelve feet in length, two feet being allowed to project over the columns, the ends being of an ornamental nature.

The walk is eight feet wide and projects to the outside line of columns. It consists of a solid four-foot foundation of stone and has a red cement finish. The columns are set on cement three inches above the walk to avoid decay, and the walk itself is situated several inches higher than the ground at each side to avoid splashing of earth in time of rain or washing off.

Four wires should be evenly distributed up and down the pillars about two inches from the wood. Along the top, galvanized wire should be stretched the entire length about eighteen inches apart to provide assistance for the climbers. White is the best color of paint.

This is a substantial pergola, and pleasant to look at in winter as well as in summer. It is a work of some duration. The entire length is one hundred feet. It is probably the only one of its kind in the Dominion. These pergolas are a specialty of some United States firms and are very much in use across the border. They vary in some small details of design. Very often they are linked with the house, like the conservatory.

The work of the carpenter or builder is an easy matter, and is soon finished, but the gardener, who has to make the dress for Miss Pergola, has many misfits. He fails to see a finish to his work.



A Pergola in the Garden of Mrs. G. MacLaurin, Ottawa, Ont.

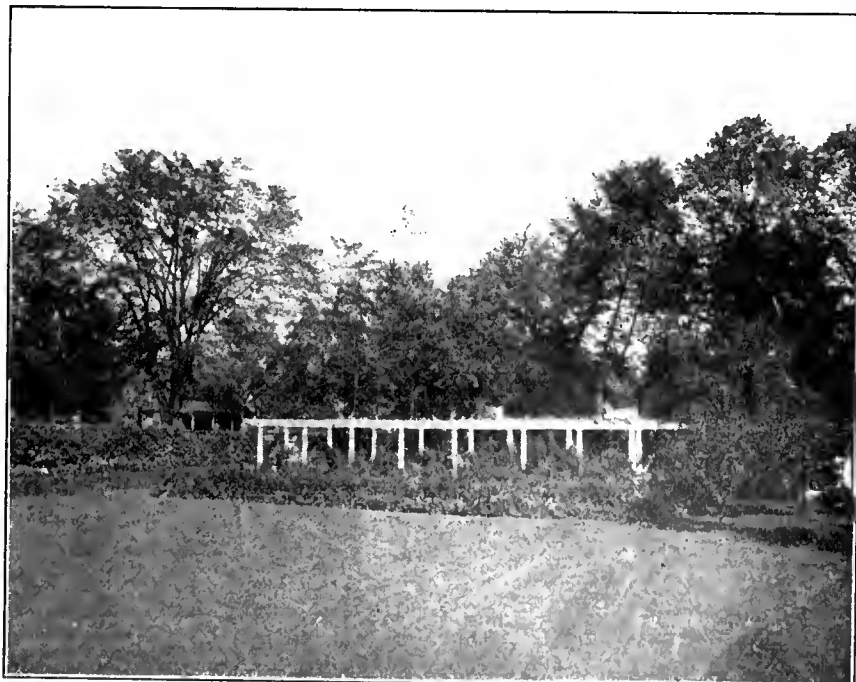
their usefulness, in our severe climate, which interferes with their splendour. To my mind we might as well say that our verandahs, arbours, and summer cottages were unnecessary. If pergolas present some difficulties as regards having them clothed with beautiful climbers, it only means that we must be more consistent in our efforts to overcome this obstacle to success.

What is a pergola, anyway? It might be termed a continued archway, with climbers overhead: A leafy canopy, partially shaded: A retreat for rest and quietude: An avenue situated near the mansion, that stands out in dignity and adds to the beauty of all around it, by its open entrances and majestic stateliness. It bids us come forth and admire.

Many pergolas, particularly those of amateur construction, remind me of the hermit build. They are out of proportion and lack space in which to stand up properly. They are inclined to be dingy, pokey affairs. Pergolas are not dungeons. The one here illustrated was built last spring. Where it now stands a row of lilacs and viburnums stood relics of many a wintry blast, which provided an excellent breeding space for sparrows and aphids and also shaded a twelve-foot strip of ground. With some reluctance they were beheaded.

duration. In winter it does not furnish a pleasant contrast to the snow.

The beautiful pillars or columns here shown are seven feet six inches, and are placed on cement pillars eight feet apart,



The Pergola in Mrs. MacLaurin's Garden as Seen From the Street

To be fashionable many dresses are called for. Grape vines for the rafters, roses for the pillars, Clematis, Dutchman's Pipe, Honeysuckle, Wistaria, Begonia, Radicans, Nasturtiums, Canary Creepers and Bittersweet, all find a place. Any shade trees overhanging the structure shut out light, rain, and another valuable item, the refreshing dew.

A good perennial border is the best possible set-off to the sunny front side of the pergola. The primary object is to have the tall five and six feet perennial planted at the back, right between the pillars, say one section between two pillars, first helenium, second perennial asters, third hollyhocks, fourth helianthus, and so on. Nothing can surpass this arrangement of the flowering heads as they nod in the leafy promenade.

A strong arrangement of flowers on either side must be an accepted part of the plant. Extra trenching of the soil and manuring is imperative if the climbers are to grow luxuriantly. On the sunny side we have tried Tausendschon Rose on the pillars, also Clematis, Aristilochia, Wistaria, and grape vines. The idea is to establish permanently the wild grape vine to cover the overhead rafters and to allow them to remain all winter without pulling them down for winter protection as has to be done with most other climbers. The fruiting grape vines could be introduced and if successful they might replace parts of the wild vine. The vine leaf provides a pleasant canopy of foliage. A water tap and hose is convenient.

For several years, before the climbers and suitable material have attained their full growth, the wide and spacious walk can be fittingly decorated with large tubs of hydrangeas, bay trees, palms, coleus, and small groups of geraniums in pots, begonias, abutilons, and several baskets and boxes of summer flowering plants. Chairs, tables, and other accessories of the "five o'clock" period, further enhance the utility of pergolas and give an acceptable environment to well kept gardens.

As this pergola was not finished till June 1st, 1912, annuals were resorted to for a summer display. Nasturtiums, coleus, and canary creepers were rapidly reaching the rafters by August. Annuals were braced up on each side. Sunflowers, seven feet cosmos, marigolds, and zinnias made a fair show. Patience we must have, for the first year's growth of the permanent plants can not possibly produce complete results.

Barnyard manure not only furnishes plant food for growing the crop, but greatly improves the texture of the soil by adding the necessary humus.—F. F. Reeves, Humber Bay.

The Care of Cuttings

Henry Gibson, Staatsburg

The plants of bedding stock which were started into growth as suggested last month, will soon furnish you with a good supply of cuttings. These should be put into sand and rooted at once in order to have fair-sized plants by bedding-out time.

The rooting of cuttings seems to have lost favor with many amateurs, owing possibly to many past failures. Do not, however, be discouraged by failures. They should only be an incentive to greater effort. The majority of cuttings can be rooted under precisely the same conditions as you raise your seedlings under, save that a little higher temperature is required. For the novice, sand is perhaps the most satisfactory rooting medium. If only a few dozen cuttings are required, make use of shallow pans such as are suggested for use when sowing begonia seeds. Fill the pan to within half an inch of the top with sand and press it down firmly. Cuttings that are in right condition and inserted an inch in the sand, watered freely, and shaded from say nine or ten a.m. until four p.m., will root in from ten to twenty days, according to the kind of plants that are being rooted and the temperature of the sand.

The right condition of a cutting is quite a problem to the uninitiated, yet it is easy of solution. Take a shoot of any plant you intend to take cuttings

from, and bend it over. If it snaps you have a cutting in right condition for rooting. If, on the other hand, the shoot simply bends and does not break, it is too hard and is not suitable for propagating purposes. Cuttings of this nature will throw out roots, yet it will be slower in doing so, and the roots emitted will be weaker and more wiry than those from a cutting that breaks. Hence the resultant plant will not be so healthy and vigorous.

Every care should be taken to maintain a somewhat close and moist atmosphere during the rooting period. Draughts should be avoided at all times. Among the many plants that can be rooted in this way are geraniums, pansies, verbenas, petunias, lobelias, ageratum and fuschias.

While the plants named may be rooted under practically cool conditions, there are many others which require a much higher temperature, especially bottom heat, in order to get them to root readily. Of these, crotons, ficus (rubber plant), begonias, Lorraine, and Cinnamomum, duaseneas and bouvardias are the most popular with amateurs. The tops of ficus may be rooted in sand, but a better way is to root them on the planter. This is done by making an incision in the stem half way between two joints, then turn the knife upwards and cut through the first joint. Place a piece



A Modern Greenhouse—A Model of Its Kind

Mr. John H. Dunlop, Toronto's leading retail and wholesale florist, has recently erected at Richmond Hill, Ont., a range of greenhouses that are the most modern and complete on the continent. An interior view of one of these houses is here shown.



An Exterior View of Two of Mr. Dunlop's Greenhouses. They are 61 by 400 feet. They are worth a visit

match stalk or a grain of corn into this incision to prevent it closing and healing up, cover with moss (asphagnum is best), and wrap securely. Keep the moss moist at all times, and place the plant in a warm, moist place. If you have a warm greenhouse so much the better. When the young roots show through the moss it should be removed, and the young plants severed from the old one and potted up into a good growing medium. The old stems of these plants may be used for increasing your stock by cutting them up into short lengths, taking care to have one or more joints to each piece and placing them in sand with a good bottom heat.

Bouvardias are rather shy in throw-

ing out suitable material for propagating purposes. A better way than waiting for the old plants to throw out young growths is to make root cuttings. Remove the soil to get at the roots, and take off cuttings half an inch to an inch and a half long. Place some coarse soil in a box and over this an inch of sandy soil. On this place the cuttings and cover with the same material. Water well and place where a little bottom heat is to be obtained. Within a month you will have young plants.

When rooted all cuttings should be potted into a good, light soil in pots two to three inches in diameter, and treated carefully by shading and watering for a few days until they become established.

Tomatoes Under Glass

Jack W. Collins, Moncton, N.B.

How I grew one of my best crops of tomatoes in Canada, will perhaps be interesting to some readers of The Canadian Horticulturist at this time of the year.

The variety selected was Livingstone's Globe. The seed was sown the beginning of December. The plants were planted in fruiting houses in February, and ripe fruit was gathered in quantity by the end of April. I had forty-two hundred plants planted in five houses. From these I sold thirty-five thousand pounds of fruit. This gives an average of eight and one-third pounds per plant. The plants were planted at an average distance of two feet apart. This gave a fairly good return per square foot of ground.

The method of growing was as follows: Seed was sown in flats in a temperature of from sixty to sixty-five degrees, covered until the seed had germinated, and then transplanted to light, sunny position to develop into strong, stocky plants; as soon as large enough they were potted into three and a half inch pots, and kept growing rapidly, but with plenty of light and air until about two weeks before planting out, when they were transferred to a cooler temper-

ature to make the plants good and hardy. I find they do not flag when planted and start off much more quickly when given this treatment. I planted in the row at a distance of two feet between rows, as follows: The first two rows at a distance of one and a half feet, then a space left of two and a half feet, then two more rows of one and a half feet, and so on. This gave an average of two feet for each plant. The two and a half feet between each two rows, made it much easier to get along each row, to trim, tie and to gather the fruit. In training the plants a wire was stretched over each row right along the houses, eight feet from the ground. A cane was placed to each plant, and then made fast to the wire overhead. The plants were tied to this as they needed it, which kept them in position, and also presented a very neat appearance. In trimming out some of the foliage I never cut out more than was absolutely necessary, and then always the entire leaf. Cutting a leaf only half back tends to make that leaf sprout again. That is only wasted energy on the part of the plant. Another method which I pursued, which I know does not find favor with many growers, was to train two stems to each plant.

Also I never used stable manure or any manure at all when preparing the ground but gave fertilizers after five to six trusses of fruit had set. I find this makes shorter jointed plants and the fruit sets more freely.

The only fault to find with Livingstone's Globe, if there is a fault

to be found with it, is that it is thin-skinned and liable to crack under certain conditions. One reason for cracking is shutting down with a lot of moisture in the houses. I found it much more profitable to keep a little steam going and the ventilators open a little all night.

Success With Garden Annuals

P. D. Powe, Cainsville, Ont.

Good seed is a prime essential in attaining success with any class of plants.

Nothing but the best seed is cheap in the end. Cheap seed as sold by some firms, is nearly useless. It is apt to be largely the left over stock of former years or seed that has been bought from a grower who having allowed his stock to degenerate, is forced to sell it cheap in order to procure a market. No reliable firm sells cheap seed, or will handle it under any consideration. Most firms demand that growers send them samples of their seed, which they then put through the most rigid tests. Though seed may be procured from many of the general stores we would advise its purchase from some reliable seed company, as by so doing you can get your own choice of seed and not be bound down to a small assortment.

Before beginning to plant assort your seed into two classes, namely, those for starting in house, hothed or cold frame, and the seed that succeeds best when planted out of doors. As many of our best annuals cannot be started with success, except in a hot or cold frame, that may be said to be the most commonly used method. First obtain a shallow box (such as haddies come in) from your grocer. These usually cost five cents each. If these are not obtainable, any box about two and one-half inches deep by about twenty-four inches long, and fifteen inches wide, will do. These boxes are known to the florist as flats.

In the bottom of this box place an inch of coarse soil and place on top of this an inch of rich soil mixed with one-fifth sand. Level the soil with a piece of lath or other smooth wood, and you will then be ready to sow.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.
Published by The Horticultural
Publishing Company, Limited
PETERBORO, ONTARIO

The Only Magazines in Their Field in the
Dominion

OFFICIAL ORGANS OF THE ONTARIO AND QUEBEC
FRUIT GROWERS' ASSOCIATIONS
AND OF THE ONTARIO BEEKEEPERS' ASSOCIATION

H. BRONSON COWAN Managing Director

UNITED STATES REPRESENTATIVES STOCKWELL'S SPECIAL AGENCY

Chicago Office—People's Gas Building.
New York Office—226 5th Avenue.

1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee-keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office) 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, \$1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1911. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,626	Total	150,293

Average each issue in	1907, 6,627
" " " "	1908, 8,695
" " " "	1909, 8,970
" " " "	1910, 9,067
" " " "	1911, 9,541
" " " "	1912, 11,037
" " " "	1913, 12,524

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT

EDITORIAL

SPRAYING

The successful fruit growers and well-known authorities on spraying, who have contributed articles on spraying to this issue of The Canadian Horticulturist, are agreed that two essentials to success involve the thorough spraying of all parts of the tree, at exactly the right time. Only within the past few years have many even of our leading growers, been led to appreciate the importance of these two points. Commercial spraying is still a sufficiently new operation in orchard practice to leave no reason for wonder.

The experience of growers in many sections of the country has now demonstrated to a certainty that in the great majority of cases where spraying operations have apparently proved to be a failure, that the work was either not done with sufficient thoroughness, or at the right moment. Where an unsprayed portion of a tree is left it becomes a breeding place for insects and a seeding ground for fungus diseases, and leads to much of the work of the grower being lost. There are many other factors, such as the proper preparation of the fluids and the use of suitable appliances, that must be attended to if success is desired, but these are points that generally are watched more carefully than the two already specified.

A wise man once said that "Wisdom consists in knowing what to do next, and doing it." Our fruit growers will profit if they act on this suggestion. Prepare now for the approaching spraying season by seeing that everything necessary for the success of the work is ordered in time to ensure your being able to attend to it without delay and with the proper degree of thoroughness, when the season for spraying arrives.

ONTARIO FRUIT

Three boxes of Baldwin apples, shown recently in an open competition at the exhibition of the New York Horticultural Association, held recently in Rochester, N.Y., added to the already high reputation for quality held by Ontario fruit by winning the sweepstakes prize. This victory, together with the premier honors that were captured by Ontario fruit last fall in the competition open to the continent held in Cleveland, Ohio, and later at the Land Exhibition, in Winnipeg, where Ontario fruit captured first and second prizes, should prove a source of encouragement to Ontario fruit growers.

During the past few years we have heard much criticism of the poor quality and poor packing of a large portion of the fruit crop of Ontario. The fruit that has been sent to the western provinces, where it has met the competition of the British Columbia and Pacific Coast States' products, has been criticized with especial severity. Much of this criticism has been deserved. It has been beneficial inasmuch as it has drawn the attention of Ontario fruit growers to the need for improvement. The critics for the most part have been friends who have desired to see Ontario fruit maintain its reputation in competitive markets.

Speaking generally, the Ontario fruit grower is just as capable, and just as willing to make improvements as the fruit grower of any other section. The trouble lies in the fact that he is faced by condi-

tions that fruit growers in the newer fruit districts of the west do not have to meet. In the west the orchards are mostly new and it has been possible for the grower to introduce modern methods of culture, packing and marketing with a minimum of opposition. In the east the orchards are mostly old and fruit growers are burdened with practices that are relics of the past but which are none the less difficult to set aside on that account.

In the east the barrel pack has been popular for years. There has been a steady demand for this package. This has encouraged methods of buying which have enabled growers to dispose of their crops in bulk, and thus has made it difficult for them to appreciate the importance of following modern methods of orchard practice. We agree with the critics that the time has come for a change. We are inclined to think, however, that we may possibly devote a little less criticism to the grower and possibly more elsewhere.

An examination, for instance, of the assistance given by the Department of Agriculture in British Columbia to the fruit growers of that province, and of the work being done by the Ontario Department of Agriculture, would not prove complimentary to the latter. In British Columbia, for instance, compulsory spraying has been followed for some years. The mere suggestion of introducing such a measure in Ontario would be likely to strike consternation to the heart of the Ontario Minister of Agriculture. Yet the time has come when a move along this line is required. Some years ago it was felt that it was impractical to require the sanitary inspection of cheese factories and creameries. It was anticipated that the opposition to such a movement would be pronounced and influential. Yet such a measure was enacted and has been successfully enforced with a minimum of opposition and with results that have been a benefit to the industry. We believe that the time is ripe for the Minister of Agriculture of Ontario to have legislation enacted which will give his department power to enforce compulsory spraying in the leading fruit districts at least of the province. This would protect the largest and best fruit growers and ensure a great improvement in the quality of a large proportion of the apple pack of the province. Later the principle could be extended to other districts as conditions permitted.

The British Columbia Department of Agriculture has a much stronger staff in its horticultural division than is the case in Ontario. On the whole it is showing more leadership. By its example it is doing much to encourage and inspire the fruit growers of that province. The Minister of Agriculture for Ontario has made several forward moves of late, but should make more. Additional assistance should be given to the horticultural division of his department, and it should be permitted and encouraged to show more leadership. A portion of all the criticism of the fruit growing industry of Ontario may properly be laid at the door of the Ontario Department of Agriculture. A forward move on its part will meet with a ready response from the fruit growers.

February is a month when many of the good resolutions that we made last fall in regard to the garden we are going to have this year, will be broken if we are not on our guard. By starting many of our plants indoors now we will obtain a start that will do much to help and encourage us during the late spring and early summer months. Don't let this opportunity slip and later regret your negligence.

PUBLISHER'S DESK

Our front cover illustration shows a scene in the orchard of Mr. J. C. Harris, of Ingersoll, Ontario. Mr. Harris controls a number of orchards, in which he uses six power sprayers of the type shown.

* * *

This is the Third Annual Spraying Number of The Canadian Horticulturist. We have made an effort to fill it with information by well-known authorities that will be of practical value to our readers. We feel sure that you will like it. Year by year these special numbers have grown in popular favor. In this issue no less than fourteen firms are advertising spraying machinery, in which they believe our readers should be interested. Thus our advertising, as well as our reading columns, contain much helpful information. We have other reasons for being pleased with this issue, inasmuch as it exceeds all previous issues of The Canadian Horticulturist, both in the volume of advertising carried and in its paid circulation. No better evidence of the popularity of a paper can be furnished than the fact that both its subscribers and advertisers continue their support from year to year in an increasing measure.

* * *

Some of our readers who looked at the circulation statement published on the editorial page in our January issue, which showed an average circulation during the year 1913 of 12,002, and at the statement which appears in this issue revealing an average circulation of 12,524, may be mystified by the apparent contradiction. Both statements are correct. The statement published last month showed the average circulation last year of the first edition only of The Canadian Horticulturist. Last May, as we announced at the time, we commenced the publication of a second edition of The Canadian Horticulturist, which is known as The Canadian Horticulturist and Beekeeper. The two papers are practically one and the same, the second edition differing from the first only in its front cover and in a few pages of reading matter. This month, therefore, we decided to show the average circulation for last year of both editions. This represents an increase in average circulation during 1913 over 1912 of 1,500. This is the largest increase we have ever shown in one year. Naturally we are pleased to be able to report it.

* * *

The March issue of The Canadian Horticulturist will contain some features of special interest. The introductory article will be by a British Columbia contributor. It will expose the misleading statements issued by land agents in regard to the possible profits of fruit growing in that province, and will show what intending purchasers of British Columbia fruit land may reasonably expect to realize therefrom. There will be a special article in the floral department by Mr. H. J. Moore, of Queen Victoria Park, Niagara Falls, and an interesting, well illustrated description of a beautiful London, Ontario, garden. A western contributor will have an illustrated article in the vegetable department. The issue all through will be especially helpful. Our readers will appreciate it.

* * *

Watch for our Spring Gardening and Planting Number in April. The front cover of this issue will show one of the finest

gardening scenes ever reproduced in The Canadian Horticulturist. It will be the best gardening number of the year.

* * *

Advertisers desiring space in the March and April issues should make application at as early a date as possible to ensure a service which we may not be able to give them if they are late in forwarding their copy and instructions.

SOCIETY NOTES

Hamilton

The Hamilton Horticultural Society has elected for its president, Mr. J. W. Jones, and for its secretary, Mrs. Ada L. Potts. It was Mrs. Potts who delivered the interesting address on "School Children and Horticulture" at the recent annual convention of the Ontario Horticultural Association. Two flower shows held by this society last year were the most successful ever conducted in the city. Several helpful lectures were also given during 1913.

In tendering his resignation from the office of secretary-treasurer, Mr. McCulloch presented to the society three handsome medals, neatly engraved, and said that the medals might be given as prizes in some of the competitions. Then, on behalf of the society, President Jones gave the retiring secretary-treasurer a medal which has been in the possession of the society since 1862. The medal, which is engraved in curious figures, was presented to the Hamilton Society by the Royal Horticultural Society of Canada.

Ottawa

The Ottawa Horticultural Society has arranged a programme of meetings, which promise to prove particularly helpful and interesting. These meetings are schedul-

ed for every two weeks during January, February, March, and April. They will be held in the Carnegie Library. Each address will be accompanied with practical demonstrations of how the points touched on in the address should be carried out. Different varieties of flowers will be dealt with at the different meetings. It is believed that better results will be obtained by holding more meetings during the winter months when by holding one meeting a month and continuing the meetings during the summer. Officers of societies might write to Mr. J. F. Watson, 19 James Street, Ottawa, for a copy of the programme of these meetings.

St. Catharines

The St. Catharines Horticultural Society is now coming into its own. The Society, which has a membership of seven hundred and fifty, has really made St. Catharines the beautiful city that it is. It has been a large struggle to bring the society to its present splendid standing but the result is well worth the effort.

The last Fruit and Flower Show was the most successful in the history of the organization. The members feel much encouraged by the splendid support received from the fruit growers of the district. Special attention was paid to the children who exhibited in classes for asters, arrangement of flowers, the decoration of dolls' carriages and small tables.

It has been the policy of the Society to distribute asters and sweet pea seed among the children but last year the sweet peas were dropped. Nearly six thousand gladioli bulbs were sold to the youngsters at five for four cents. For each gladiolus bloom produced they receive from the Society four tulip bulbs. Increased interest is being taken in the work carried on by the Society at the public schools. The young folks of St. Catharines are receiving a training that will count for much in future years.

Nova Scotia Fruit Growers' Convention

THE fiftieth anniversary meeting of this association met at Kentville, January 20-23, and was marked by a record attendance and deep interest in the discussion of problems confronting the fruit growers of the province.

The opening meeting was held on Tuesday evening and was addressed by the Premier, Hon. P. H. Murray. The people of Kentville also put on a splendid musical entertainment. Wednesday was devoted chiefly to a discussion of the greatest enemy of the fruit growers of the province the Black Spot or scab of the apple.

Prof. Caesar, of Guelph, set the ball rolling and didn't leave it until those present knew all about its life history, conditions of development and control.

The principal points brought out in the address will be published in The Canadian Horticulturist.

SPRAYING PAYS

The experience of some of the best fruit growers in the province was given. These showed that thorough spraying pays a big dividend on the expense of application, even in a year like this when many are in doubt whether or not spraying is efficient.

Mr. J. M. Robinson, of the Experiment Station, Kentville, gave tabulated results of spraying experiments in three orchards in the Valley. In brief these experiments showed that commercial lime sulphur gave better results than the home boiled, that lime sulfur is preferable to Bordeaux, and that the difference between sprayed and un-

sprayed fruit per acre gave a gain in favor of the sprayed fruit of over one hundred dollars an acre.

A very able address on cooperation and one which should be published all over the Dominion, was given by A. E. Adams, of the United Fruit Companies of Nova Scotia. He went into history, and showed how co-operative organizations had benefited such countries as Denmark, England and Germany, and then took up the work and aims of the United Fruit Companies. This organization bids fair to become one of the strongest factors in the progress of our province industrially and agriculturally. Already, by scientific marketing and cutting down expenses of shipping, thousands of dollars had been saved to the farmers, and not only had money been saved in the selling but also in the buying of supplies. The organization was becoming stronger every day.

APPLE APHIDS

Prof. Brittain, of Nova Scotia Agricultural College, gave an instructive talk on the apple aphids and their control. He recommended adding to the ordinary spray mixture Black Leaf 40, a mixture preparation on the market, and spraying after the young aphids have hatched out. Because we are able to put Black Leaf 40 in with the spray we use for scab, and so forth, it is, therefore, better than the emulsions which have to be sprayed by themselves.

Dominion Entomologist Saunders told of
(Continued on page 51)



NIAGARA

THE Sprays of Quality

HIGHEST IN STRENGTH
ALWAYS UNIFORM
FAMOUS FOR RESULTS
RELIABLE OLDEST AND BEST
ALWAYS READY TO USE

NIAGARA SOLUBLE SULPHUR

(Patented in United States and Canada)

THE MOST TALKED-OF SPRAY IN AMERICA

A Sulphur Spray in Powder Form. Dissolves immediately in water. No sediment. A positive Fungicide and Insecticide. Works quicker and better than Solution. It does all the work of Lime-Sulphur and has the following advantages: Is cheaper—Easier to handle—No leakage—Keeps indefinitely—Saves freight and storage. 100 lbs. of Soluble Sulphur will make more spray than a 600-lb. barrel of Solution. Soluble Sulphur was used by hundreds of growers in Ontario in 1913 with excellent results. Those who experimented last year will use it entirely this year.

More Soluble Sulphur will be used this year than the combined output of all Lime-Sulphur factories.

Remember this material can only be procured from us. Last year we were forced to disappoint many growers. Our supply is limited again. Order at once so as to be sure of being supplied. We will be pleased to send additional information about this great spray. Write for it.

DON'T PAY FREIGHT ON WATER

ARSENATE OF LEAD

SWIFT'S BRAND—The highest grade of Arsenate of Lead in the world. Will not burn foliage. Mixes easiest and stays mixed. Sticks best and kills best. 15% Arsenic oxide. **Guaranteed.** When you use **Swift's** you don't lose that half-hour dissolving your lead every time you fill your tank. You don't find that dark sediment in your tank, either. You can buy cheaper brands, but you cannot buy any Lead as good. **SWIFT'S** is the STANDARD.

NIAGARA LIME SULPHUR

The Pioneer Sulphur spray—Oldest and most reliable Solution made. Highest in Beaume test—Absolutely clean and uniform.

Because of the success of NIAGARA we have had many imitations. Get the original.

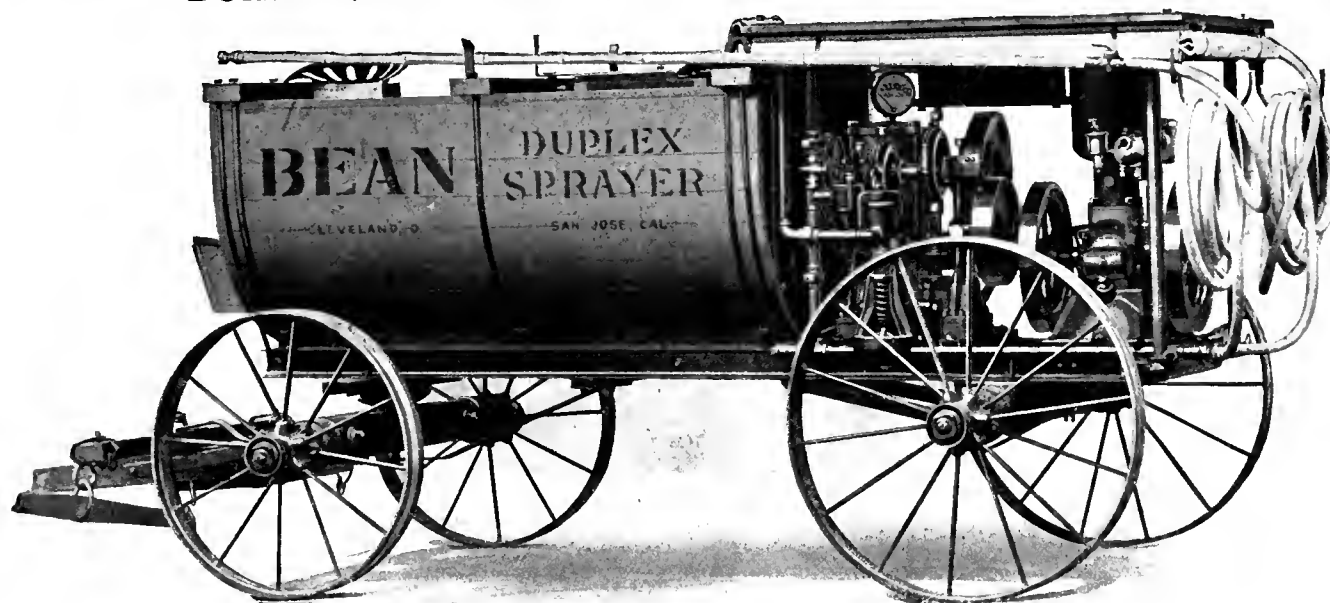
WHERE EVER FRUIT EXCELS NIAGARA SPRAY IS USED

NIAGARA BRAND SPRAY CO. LTD.

BURLINGTON, ONTARIO

SPRAY PUMPS

THAT GIVE
CAPACITY HIGH PRESSURE SIMPLICITY EFFICIENCY
DURABILITY LOW COST OF MAINTENANCE



POWER PUMPS

BEAN DUPLEX POWER OUTFIT—3 cylinders—Operates with $1\frac{1}{2}$, $2\frac{1}{2}$ or $3\frac{1}{2}$ h.p. engine—Capacity: 6 to 7 gallons per minute—Pressure: 200 to 250 lbs. The perfect sprayer.

BEAN GIANT POWER OUTFIT—3 cylinders—Large capacity—Will supply four lines of hose—Operates with $2\frac{1}{2}$ or $3\frac{1}{2}$ h.p. engine—Most powerful sprayer made.

NIAGARA POWER OUTFIT—3 cylinders—Capacity: 6 to 7 gallons per minute—High pressure—Light and very compact— $2\frac{1}{2}$ to $3\frac{1}{2}$ h.p. engine.

BEAN MIDGET POWER OUTFIT—The one man outfit—Operates with $1\frac{1}{2}$ h.p. engine—Pressure: 175 to 200 lbs.—Best light power sprayer ever made.

These power sprayers have many exclusive features. All have porcelain-lined cylinders, so are proof against the chemical action of corrosive sprays. Valves are large and very accessible. No threaded joints. No stuffing box packings to leak. Direct connected. No bolts or connecting rods.

PATENT PRESSURE REGULATOR—The greatest invention ever put on a power sprayer. Maintains a uniform pressure whether nozzles are turned on or off. Saves one-third the gasoline and the same proportion of wear and tear. With this regulator the engine can be started as easily against full pressure in the pump as it can when there is no pressure.

This pressure regulator is the simplest, safest and most efficient and dependable pressure controlling appliance on the market. It eliminates 90% of the troubles so common in other power sprayers.

HAND PUMPS

MAGIC NO. 9—Largest hand pump made—Can be easily operated by one man at a pressure of 140 lbs.—Convertible into a power sprayer.

LITTLE GIANT NO. 70—The most powerful barrel sprayer on the market. High pressure.

THE PIPPIN NO. 50—Barrel pump—Made for smaller orchards.

Write for our new complete catalogue No. 29, which illustrates and describes in detail all our equipment.

We would like to refer you to our thousands of satisfied customers. We have no dissatisfied ones. If you need a pump of any kind it will pay you to investigate the BEAN.

WHERE PROFITS ARE THE BIGGEST, THESE POWER PUMPS ARE USED

NIAGARA BRAND SPRAY CO. LTD.

BURLINGTON, ONTARIO

Ontario and the Northwest Market

E. F. Palmer, Ontario Fruit Branch, Toronto, Ont.

If Ontario is to retain a fair portion of the northwest market, apple growing must be made a business. During the past year Ontario has shown that she can produce just as good fruit in every respect as British Columbia. The Canada Land and Apple Show is evidence of this statement, where Ontario carried off first and second prizes in the competition in apples, while British Columbia came third. We can produce the fruit but we have got to advertise it. Ontario should have fruit at every large exhibition throughout the northwest, not just one or two. British Columbia spends ten dollars annually advertising her fruit where Ontario spends one. What are we doing to advertise ours?

Already Ontario has lost much of the Northwest fruit market. Why? Because of our policy, or rather lack of policy, in sending to this valuable market too much poorly packed, poorly colored and poorly graded fruit. We have made no effort to retain or extend our market there, but rather the reverse. And the expected is happening. Western grown fruit is forcing Ontario out of market after market, for the western growers realize the importance of this Northwest market, and they are extending it by putting up good fruit in good packages, and by judicious advertising.

What has Ontario done to advertise her apples in the northwest? Little, but trying to see how much poor fruit she can send without the fruit inspectors detecting it. There is much good Ontario fruit, too, of course, but there is enough, and more than enough poorly packed and poorly graded fruit to give all Ontario stuff a

black eye. Only in few cases is fruit being put up that will successfully compete with fruit from British Columbia and the western states. And what encouragement is there for a few to put up an honest pack when they have to sell their fruit in the face of an existing prejudice? Just this—that, while Ontario fruit as a whole has a bad name, and will have until better cultural and packing methods are more generally used, yet those who are putting their fruit up as well packed and graded as western fruit, are receiving prices that more than pay them for their extra trouble. They are selling to dealers, however, who know their pack and who therefore have confidence in them. How much confidence have western fruit dealers in the average Ontario pack that goes to the west?

NOT IMPROVING

I have said that we have made no effort to extend or even retain our share of the northwest market—no continued effort. We have done even less. We have persisted in sending poor grade fruit, while our western competitors have improved their grade and increased their advertising year by year.

It is now time for someone to say that western fruit hasn't the quality of Ontario fruit. I hear that statement wherever I go, and I hate to hear it, not because I am originally from British Columbia, but because it sounds too much like trying to justify poor grading and packing. But why avoid the real issue by harping on quality? We are losing this market, and it is poor methods that are losing it. Extra quality of fruit alone will not save us. The past has proved that. How much is there in this

"superior" quality anyway? Those who are in the habit of comparing an Ontario Snow and a British Columbia Snow, an Ontario McIntosh and a British Columbia McIntosh, just for a change compare a British Columbia Jonathan and an Ontario Jonathan, a British Columbia Spitzenberg and an Ontario Spitzenberg, a British Columbia Yellow Newtown and an Ontario Newtown.

POINTS TO NOTE

Further it must be remembered that the Northwest is a market of comparatively low grade fruit. The west has not shipped her fancy varieties there in any quantity but has sent such varieties as Ben Davis and Rome Beauty. Also the average age of the orchards in British Columbia is only nine or ten years, and everyone knows that fruit from young trees is not as high quality as from mature orchards. Much, too, of western fruit has in the past been over-irrigated. This produces poorer quality, poorer keeping fruit. However, these poor quality varieties of apples, and apples from young orchards, have been compared by the northwest people, many of whom are from Ontario, to high quality varieties as King, Spy and Russet, from mature Ontario orchards. Hence largely the impression that western fruit is of inferior quality.

LOSING THE MARKET

However, if we have better quality fruit, that doesn't alter the fact that the northwest market is slipping away from us. For in addition to poor grading, we have not the color nor the pack, nor the attractiveness of package of our western competitors. That is, as a general rule, our apples are inferior to western apples in color and attractiveness of pack. The exhibitions in which there has been a chance to compare fruit from the two provinces have proved that Ontario can produce just as good fruit


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Get away from useless drudgery and old-time wasteful cultivating methods in your family garden and on your farm. Use the Planet Jr and do the work of 3 to 6 men better, quicker, cheaper. Planet Jrs are light, strong, lasting. \$2 to \$100. Fully guaranteed.

FREE Our new 72-page illustrated catalogue of 60 implements for all farm and garden uses. Write postal today.


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Planet Jr.




No. 28 Planet Jr Combined Hill and Drill Seeder, Wheel Hoe, Cultivator, Rake and Plow

The newest and most accurate Planet Jr seeder. Sows all garden seeds in hills or drills, opens the furrow, covers, rolls down, and marks next row all at once. Has steel frame and handles, and complete set of attachments. Light enough for woman's use.




No. 25 Planet Jr Combined Hill and Drill Seeder, Double Wheel Hoe, Cultivator and Plow

A capital implement for large-scale gardening especially. It has a steel frame, and complete seeding and cultivating attachments. The hoes run close to row without danger to leaves or roots.




Planet Jr 12-tooth Harrow, Cultivator and Pulverizer

An invaluable tool in the market-garden, truck and strawberry patches. Has new steel wheel which prevents clogging. Its 12 chisel-shaped teeth cut out all weeds, stir and mellow the soil and leave the ground in the finest condition without throwing dirt on plants.



No. 30 Planet Jr Single Wheel Hoe, Cultivator, Plow, Rake and Marker

A new Planet Jr Single Wheel Hoe that is light, strong and practically indestructible—the frame and handles are steel. It is completely equipped for plowing, hoeing, cultivating, and raking. The marking attachment insures rapid, economical wheel-hoeing.



No. 10 Planet Jr Horse Hoe, Cultivator, and Hiller

Does more and better work than any other horse-hoe ever invented. It is light and easily handled, yet unusually strong. Has new steel wheel which prevents clogging with trash. Quickly adjusted to rows up to 3½ feet apart. Vine-turner attachment is great for many crops at last workings.

Two acres a day can be worked with this tool.

in every respect as British Columbia. But we are not producing or packing the quantity of good fruit that British Columbia is. To retain a fair part of the northwest market we have got to put up a higher grade of fruit in a better package than the barrel. For what quality is it that sells an article? Its appearance? In the majority of cases, yes. Thus it is the color of the fruit, the perfect grading and the appearance of the package that are the main factors in selling western grown fruit. Further, people have come to know that they can rely on fruit from the west. They know that when they buy a box of apples from British Columbia or the western states that the fruit will be practically the same throughout the box. It is honestly packed. If it is marked No. 1 it really is No. 1. If they could rely on Ontario fruit the same way it would mean thousands of dollars to the apple growers of this province.

It is said that Ontario fruit is preferred in the northwest on account of better dessert and cooking quality. It is preferred, but it does not sell fruit because of the several reasons already outlined—appearance of fruit, appearance of package, and honesty of packing, as compared to western apples.

In the Winnipeg Tribune for November 29, 1913, western jobbers are quoted as saying "that the American fruit is the best seller because it is better sorted and packed and that Ontario can recapture the western market and drive out American competitive fruits as soon as it standardizes its product and overcomes the effects on the westerners of past carelessness and dishonesty in packing."

WHAT MUST BE DONE

And so, as I have already intimated, if we are going to build up a market for our

fruit in the Canadian northwest, we have got to produce a higher grade of fruit as to color and freedom from blemishes; we have got to put up an honest pack, and we have got to use the western package—the box. For though a few of the western towns still prefer the barrel, and there will doubtless be a market for barreled fruit for many years to come, yet the box is coming into greater favor. It is a handier package and—it has a reputation. The barrel has lost its if ever it had one. And further, though the day of high prices for box-packed apples is probably gone forever, this fact in itself brings the box-packed apples in more direct competition with barrel-packed fruit. The result is that the market for barreled fruit will become more and more restricted each year and there will be a demand for larger and larger quantities of boxed fruit. The fact is evident and we must accept it.

MUST HAVE AN HONEST PACK

Then as to an honest pack. We have got to produce it, that's all. We are not competing with British Columbia until we do. We are simply out of the competition. And here again the argument is all for the box package. Here is an extract from a western paper. "Barrels are going out of fashion. The demand for them is giving place to the demand for the boxed product." The barrels encourage carelessness in grading for quality and size. It has been the package not so much of inferior grades of apples, as ungraded apples. Let the top and the bottom of the barrel be nicely "faced" and the space between invites ungraded fruit. The box, on the contrary, requires close grading for size, as the apples must be uniform to pack properly. This close grading further insures that all blemished fruit will be found and culled out. The box then does not encourage improper grading.

Douglas Gardens

OAKVILLE, ONT.

Our Spring

— (1914) —

Planting List

Is now ready for mailing

A copy will be sent promptly on application

Early orders from our list are respectfully solicited. It is almost certain that there will not be sufficient plants this year to go around. Early orders will save disappointment.

The newer Snapdragons (*Antirrhinums*) give much satisfaction and they should be in all gardens. We shall have a limited number of the new Silver Pink, which is especially fine.

Our China Asters and Stocks are also of high quality.

JOHN CAVERS

Make Your Own Crop Prices!

With a Goulds Reliable Sprayer you not only increase your yield, but you grow a higher grade of fruit. Thus you take two extra profits—one on quantity and one on quality. Spraying is useless unless it is done effectively. Every leaf, every crevice must be saturated with solution. Goulds Sprayers apply the mixture in just the right form and quantity. They are made by experts in the largest exclusive pump factory in America.

**GOULDS
RELIABLE
SPRAYERS**

The pump, fittings, entire equipment are constructed to last, to withstand chemical action. All working parts are made of bronze. The improvements are new, practical. They are the result of countless experiments, of the application of skill and long experience by trained engineers. Get the best spray outfit to start with. Cheap outfits are time and money wasters, more costly in the long run.

GET FREE SPRAY BOOK

40 pages, illustrated. Packed full of facts you want to know. Spray formulas, spray calendar, how to mix and apply, how to prevent and destroy insects and diseases, what sort of sprayers to use, a volume of valuable information. Write for it to-day.

THE GOULDS MFG. CO.
17 W. Fall St., Seneca Falls, N.Y.
Largest Manufacturers of Pumps for Every Purpose



Apples Per Acre \$600
Potatoes " " \$250



For the Land's Sake

Use the best Manure
and get

GOOD CROPS

For Nurseries, Fruit Growers
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Sure Growth Compost

Makes poor land fertile and keeps fertile
land most productive.

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Say you saw this ad. in The Canadian Horticulturist

FAVOURITE FLOWERS from the BEAUTIFUL OLD-FASHIONED GARDENS of ENGLAND

KELWAY'S famous Hardy Herbaceous Plants are modern developments of the old English favourites. The cottage "Piny Rose" has become the Pæony, incomparable in form, colour and fragrance. The old-fashioned Larkspur has developed into the stately blooms of the Delphiniums; Gaillardias, Pyrethrums and the rest, all serve to bring back the charm of the old-world English garden. Special care is taken in packing plants to arrive in Canada in good order, and they can be relied upon to thrive with a minimum of attention.

Full particulars and illustrations given in the Kelway Manual of Horticulture mailed free on receipt of 60c by

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LANGPORT - SOMERSET,
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Send—now—for a copy
of the Kelway Book—
and make your Garden
glorious

Kelway's Perennials
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Canadian Gardens



Direct from
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The Royal Horticulturists
LANGPORT ENGLAND

Last, and of most importance, Ontario as a province, has got to produce a better grade of fruit. Herein lies the most difficult problem, for in Ontario the apple orchard is usually a side line to general farming. It is unsprayed, unpruned and uncultivated, for the farmer does not realize its money value to him. He sells the fruit for whatever he can get, and every dollar he gets he considers money found. I would again quote the Winnipeg Tribune as follows: "The whole trouble lies with the Ontario fruit grower. Fundamentally, he is not a fruit grower at all, but a mixed farmer, who devotes most of his time to his grain and his stock. He neglects the four fundamentals of scientific fruit growing, which are judicious pruning, adequate spraying, careful thinning and thorough cultivation of the orchard ground. Only when these are attended to can really first class fruit be secured. A man cannot work his farm and neglect his orchard and raise good fruit. This is the fundamental fault which has brought Ontario fruit into disrepute in the west."

The farmers of Ontario as a whole have got to be taught the value of cultivating pruning and spraying. Then, and not until then, can we look for a general improvement in the grade of Ontario apples. The western apple growing districts have the advantage of us in that fruit growing is a comparatively new industry there. They are not troubled to nearly the same extent with insect pests and fungous diseases and in the majority of cases, fruit growing is the sole means of livelihood of the people in the fruit growing districts. It is their occupation, their business, and they have got to make it pay. It is not a side line to be neglected and the crop sold for what it will bring.

PICKLING METHODS AT FAULT

I believe also that much of Ontario's apple crop is picked before it is fully mature and some after it is over mature. This is partly due to the fact that Ontario growers take all the fruit off the trees at one picking. Immature and over-ripe fruit has low storage and shipping quality. Green immature fruit is subject to scald, and if very green will shrivel in storage, while the same variety fully matured holds much longer and in better condition. This principle has been found to hold true for all kinds of fruits except pears and lemons. These are apparently the only fruits which are better when picked before full maturity or ripeness as the term is ordinarily interpreted. By full maturity is meant full color, with firm flesh, and the seeds fully grown and colored. It is best, especially with the earlier ripening varieties, to make more than one picking, selecting each time the fully colored fruits, and allowing the undeveloped to remain. The fruit grown on the outer branches develops more rapidly and consequently ripens first.

FRIENDLY CRITICISM

I have had the opportunity recently of reading a letter from an Ontario man who has lately gone to the northwest. He has made a special study of market conditions there. He writes as follows:

"I feel keenly with regard to the marketing of Ontario apples in the west, and I am strongly of the opinion that although Ontario is rapidly losing that market, yet it is not too late, were proper methods of holding it adopted.

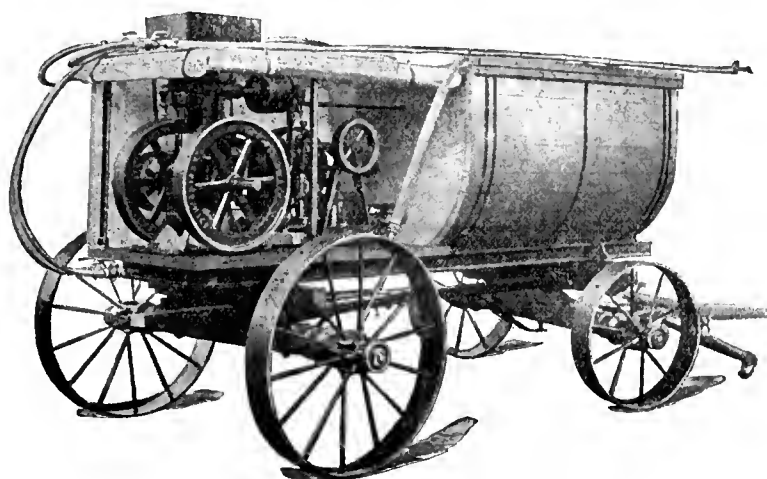
"The most serious phase of the question is this: The people of British Columbia are making a rapid advance in the matter of apple production. They are not only packing their apples well, but they are improving the quality as quickly as possible

"The Hardie Power Sprayers"

The Sprayer that is Free from Experimental Risks

OVER 6,000 IN USE

**PLACE
ORDERS
EARLY**



**SEND
FOR OUR
CATALOG
NOW**

THE HARDIE TRIPLEX

Known as the "*The Sprayer with the Trouble Left Out*" used in over 6,000 of the best orchards of America. Many have been used for over ten years. They are noted for their Simplicity of Construction, Large Capacity, High Pressure, Light Weight and most important of all, Their *Dependability*.

Thousands of the most successful growers say their success is in a large measure due to the reliable and effective operation of this machine, which never fails, and which is always ready to deliver the spray to the tree in large volume and under high pressure.

HARDIE FEATURES

SIMPLICITY OF CONSTRUCTION—Obtained by leaving out everything of a complicated and troublesome nature, using only such construction as long experience has proven best.

LIGHTNESS—Obtained by using high carbon pressed steel frames such as are used under all automobiles, in place of the big heavy timbers or heavy soft steel frames. We get four times as much strength with less than one-half the weight. Our machine frames only weigh seventy pounds and will carry a load of three tons. This same principle is carried out through the entire machine.

STRENGTH—Obtained by bearing in mind that anything is only as strong as its weakest part, by knowing where strength is needed and by using material which will stand the wear and tear of high pressure work.

ACCESSIBILITY—(Get-at-ability)—we build our machines so that you can get at any part in a moment. You never need to take a "Hardie" to the machine shop if an accident happens. You can fix it generally in the orchard. Any one who has ever used a power sprayer knows the importance of Accessibility.

BIG CAPACITY—Our pumps are properly designed and are specially built by "Sprayer Specialists." We know the importance of lots of liquid at the nozzle and build accordingly.

HIGH PRESSURE—We use a powerful engine on our machines and our pumps are so light running that we get the highest pressure. All of our machines are guaranteed to maintain a steady, working pressure of 200 pounds.

FROST PROOF ENGINE—We use the IDEAL Engines. R. E. Olds, the Pioneer Gas Engine Builder of America, the R. E. Olds of Automobile fame, is at the head of the firm that builds them. There is no engine just as good as the Ideal. It cools with water, but it is carried in such a way that freezing will not injure it.

STAY-THERE HOSE COUPLINGS—The kind that you can't blow off.

HILO SPRAY ROD—Throws the spray three feet or thirty feet as you want. Just a movement of the thumb does it.

ORCHARD SPECIAL SPRAY HOSE—The hose that has made good.

THREE SIZES OF POWER MACHINES

The Triplex, shown above. Specifications:

BED: High Carbon pressed steel.
TANK: 1½ in. Red Cypress. Capacity, 200 gallons.
PUMP: Three 2-in. cylinders. Capacity 6½ gallons per minute.
ENGINE: Full 3 H.P. Water cooler. Magneto ignition.
TRUCK: Steel wheel "Havana" truck, wheels 28 in. front, 34 in. rear, ¾ in. x 5 in. tires. Complete with neck yoke and double tree.

PRICE: Lower than any other machine of like Specifications.

The Duplex—A smaller machine of the same type. Specifications:

BED: High Carbon pressed steel.
TANK: 1½ in. Red Cypress. Capacity, 150 gallons.
ENGINE: 1½ H.P. Water cooler. Magneto ignition.
PUMP: Two 2-in. cylinders. Capacity 4½ gallons per minute.
TRUCK: Havana Steel truck, front wheels 28 in., rear wheels 34 in., with ¾ in. x 5 in. tires. Complete with neck yoke and double tree.

PRICE: Lower than any other machine of like Specifications.

The Hardie Junior—A still smaller machine. Specifications:

BED: 4 in. x 4 in. Map'le.
TANK: 1½ in. Red Cypress. Capacity 100 gallons.
PUMP: Single Cylinder, double acting. Capacity 3 gallons per minute.
ENGINE: Air cooled 1 H.P. Battery Ignition.

PRICE: Lower than any ever put on a practical power sprayer.

The Hardie Hand Pumps—The World's Best. Made almost entirely of Brass. So simple a "Boy with a Monkey Wrench" can take them apart and put them together again. Made in twenty sizes and styles.

Get our catalog and prices before you buy. You will save money, time and trouble by so doing.

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Established OF CANADA 1875

Capital Authorized - \$10,000,000
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Reserve and Undivided
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D. R. WILKIE, President and General Manager

Open a SAVINGS BANK
ACCOUNT. Deposits of
\$1.00 and upward received

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Remarkable Discovery That Cuts Down the Cost
of Paint Seventy-Five Per Cent.

A Free Trial Package is Mailed to Everyone
Who Writes

A. L. Rice, a prominent manufacturer of Adams, N.Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof and as durable as oil paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manuf'r., 441 North St., Adams, N.Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write to-day.

In that province poor varieties are destroyed and replaced by better varieties, and although much is said against the quality of British Columbia apples, yet the fact remains that some of the varieties are almost, if not quite as good, as those produced in Ontario.

"Then, too, the British Columbia fruit grower is becoming very aggressive. The bad season of 1912 has caused him to become almost desperate, and this year great efforts were put forth to market their fruit more satisfactorily, and I have good reason to believe that they have succeeded in doing so."

Canadian Markets*

Robert Thompson, St. Catharines

During the past year many of the fruit growers have asked the question: If we continue to increase our planting as rapidly as we have during the last few years, will we be able to find markets for the fruit grown? I wish to answer this question very emphatically, and say, Yes, if we use common sense and business methods in the distribution. There are consumers enough in Canada to use all the tender fruits that can be grown from Toronto around the head of the lake and to the Niagara River if all the suitable soil were planted. This statement may seem pretty strong, but I wish to state that it is based on years of study given to the distribution of our fruit as the president of one of the oldest, largest and most successful of our cooperative fruit growers' associations. If the fruit can be placed before the consumer in good shape and at reasonable prices there is hardly any limit to what may be consumed.

First: Our own Ontario market can be doubled, trebled, yes and quadrupled, if we go after it. There is hardly a town but what will take at least five tons—twice or three times each week, if arrangements could be made to get the fruit dealers to get in their supply by freight—the fruit can be landed in perfect condition at less than half the cost by express, and no pilfered or broken baskets. If we continue to depend on the express companies to furnish transportation for us, so long will we have complaints, dissatisfaction and poor distribution. During the past season several of the smaller towns have been supplied as I suggest, and in every case with satisfaction to every one, and the quantity consumed was a surprise to the grower.

Second: The lower provinces also furnish a very large opening that has never been worked to any great extent.

Third: The western provinces present an enticing field to the grower. We read a good deal about Ontario fruit not holding its own and that western fruit is gradually crowding out the Ontario growers, which if half were true, would mean ruin to our industry in Ontario. Unfortunately a lot of writers and others come back from visits to the west and hasten to present to the public here the tales they have listened to told by certain wholesale jobbers who are doing their best to get control of the fruit trade of the west, and then rob the public worse than ever, or to the complaints of some few who expect to purchase fruit as cheaply as in Ontario, or to those who have purchased some of the poor fruit that is sometimes sent out from here, or who have received shipments from Ontario not properly packed or loaded, and that has arrived in poor condition.

*A paper presented at the recent annual meeting of the Ontario Fruit Growers' Association

First-Class Commercial Gardeners Wanted

A few good market garden properties for sale or rent. Locations good, prices and terms attractive. Cheap natural gas for greenhouse fuel. Write for details to

O. PATTERSON FARMER - Jeannette's Creek, Ontario

Beautify and Protect Your Property

Peerless Ornamental Fencing accomplishes two great purposes. It beautifies your premises by giving them that symmetrical, pleasing, orderly appearance, and it protects them by furnishing rigid, effective resistance against marauding animals, etc.

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is made of strong, stiff, galvanized wire that will not sag. In addition to galvanizing, every strand is given a coating of zinc enamel paint, thus forming the best possible insurance against rust. Peerless ornamental fence is made in several styles. It's easy to erect and holds its shape for years.

Send for free catalog. If interested, ask about our farm and poultry fencing. Agents nearly everywhere. Agents wanted in open territory.

Banwell Hoxie Wire Fence Co., Ltd.
Winnipeg, Man.—Hamilton, Ont.



THE BEEKEEPERS' REVIEW

would like very much to enroll a goodly number of new subscribers for the year 1914. Listen! Besides the 3,000-colony series managed from one office, we will begin with the January number of the REVIEW a series of articles by a beekeeper "grey with experience" that we will call the Farmers' Series; or, How to Produce Comb Honey with Two Visits a Year. The editor of the REVIEW has looked into this system quite thoroughly, and believes that, with this method that will be described in the REVIEW during 1914, the busy man or farmer can harvest much more comb honey per colony, with about a fourth the work that is required with the ordinary system now in vogue.

All progressive beekeepers should subscribe for two or three good bee journals. We are making a special low price on the REVIEW when clubbed with other bee journals.

Here is a { GLEANINGS, one year, \$1.00 } Both, one year, for \$1.50
good one { The REVIEW, one year, \$1.00 }

Here { GLEANINGS, one year, \$1.00 } All Three for \$2.00
is an { AMER. BEE JOURNAL, 1 yr., \$1.00 }

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Extra for Canadian postage: Gleanings, 30c; American Bee Journal, 10c.
All three listed above 40c.

To take advantage of this low price all remittances should be addressed—

THE BEEKEEPERS' REVIEW

NORTHSTAR, MICHIGAN

I think I have a right to speak with some confidence when I give you this information, viz.: That the St. Catharines Cold Storage Company has been giving this market special attention for over ten years; that their shipments have increased year by year until the past season they sent out to the west one hundred and seventy-eight car loads containing two thousand four hundred and thirty boxes and forty-four thousand four hundred and eighty baskets of peaches, ninety-one thousand four hundred and fifty packages of tomatoes, one thousand five hundred and fifty boxes and fifty-eight thousand two hundred and twenty baskets of pears, eight hundred and sixty boxes and ten thousand three hundred baskets of apples, fifty-seven thousand five hundred and thirty packages of plums, fourteen hundred and sixty baskets of peppers, twelve hundred baskets of crabs, fifteen hundred and seventy baskets of quinces, one hundred and forty-nine thousand four hundred packages of grapes, besides several hundred baskets each of egg plants, onions, cucumbers, beans, melons, black



Let Me Send You My New Big Book **FREE** "Why, How and When to Spray"



EVERY farmer, truck- or fruit-grower needs this book. It is more than a catalog. Contains 74 different illustrations from photographs of insects and plant diseases that rob the grower of his profits. It gives full details as to how to combat these pests, the various remedies which experiment has proven successful and directions as to how and when to apply them. The book also contains illustrations, some in colors, of the famous HURST SPRAYERS—28 different styles and sizes—from small hand power outfits to large gasoline engine sprayers for field and orchard. It explains in detail the liberal terms on which HURST SPRAYERS are sold—

10 Days FREE Trial—5 Year Guarantee

No Money In Advance—No Freight To Pay

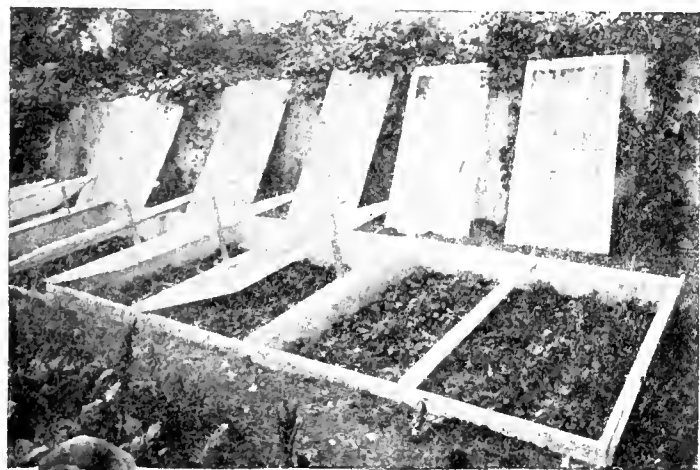
I will ship you any HURST SPRAYER on 10 days free trial, without one cent in advance—no bank deposit—no agreement to keep and pay for the machine unless you are thoroughly satisfied. Our liberal selling plan gives you your own terms of payment. The sprayer will pay for itself in the extra profits of one season. I want to tell you about our



Money Saving Offer This offer goes to the first buyer in each locality this season. So write today. Tell me what size sprayer you need or what you have to spray and get my big free book and raise bigger, better crops, and increase your profit.

E. H. LAMIELL, General Manager

THE H. L. HURST MFG. CO., 987 North St., Canton, O.



Gardening By the Sense of Sense Or the Reason Why of Garden Boosters

There are lots of us, who are "put-offs." We put off yesterday, what should have been done the day before yesterday. It's very human—but very bad for gardening.

Before expanding on the actual get ready phrase, let's digress for a moment into the "I-told-you-so" class.

The last part of last Winter, you will remember, was just the kind that made you think that "Spring is going to be early this year."

But it wa-n't. It lagged along until some of us had to plant our gardens all over again, and others said "what's the use anyway of trying to have an early garden any more in this confounded climate?"

Along in February we reminded you that Cold frames or Hot beds were the only sure insurance against a late garden. We even went so far as to say pretty strongly that you ought to buy some of our frames—even if only ten of the single plant ones for \$6.25.

We endeavored to make it plain to you how, with the help of frames, you could boost your garden along anywhere from

two to six weeks. It being entirely up to you which.

But some of you trusted to luck again. That's why we can now say, "I-told-you-so."

But to the real point: This year you are going to buy frames—your made up your mind to that eight months ago.

This being so, as it certainly is so, then the thing for you to do is: send at once for our Two P's Booklet which tells you about the Pleasure and Profits of Cold Frames and Hot Beds. We have seven different kinds and sizes of these frames or garden boosters.

Every one of them is illustrated, described and priced in that booklet. There's several pages of Helpful Hints, and a Planting Time Table, both of which you want right handy under one cover.

Send for this Two P's Booklet. Pick out your frames. Order them. The only way to be ready—is to get ready.

LORD AND BURNHAM CO. LTD. OF CANADA

GREENHOUSE DESIGNERS AND BUILDERS

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Market Gardeners Make Big Profits from Small Acreage by Modern Cultivation and Spraying

If a business doesn't pay there's a reason, and the same may be said of a farm. Many 10 acre market gardens are producing greater profits than 150 acre farms simply because modern cultivation and spraying are applied on the former and disregarded on the latter. Adopt the spraying policy but, in doing so, select

SHERWIN-WILLIAMS NEW PROCESS ARSENATE OF LEAD

to effectively exterminate all leaf-eating insect pests.

This spraying material is used exclusively by many of the largest growers and societies in the fruit growing districts of the country. These people are business men as well as fruit growers, and they prefer to use Sherwin-Williams New Process Arsenate of Lead because they find it pays them better.

It is very fine and fluffy in character, so remains well in suspension, making a spray, uniform and efficient in poisoning capacity, that covers the largest amount of foliage. S-W New Process Arsenate of Lead, is absolutely safe—it cannot burn the foliage or russet the fruit, because all the Arsenic acid is thoroughly combined with the Lead. This arsenate can be used with Bordeaux Mixture or Lime Sulphur.

S-W NEW DRY ARSENATE OF LEAD

has all the requisite qualities of a good paste lead and the advantage of being in dry powder form for dusting on garden truck. It mixes readily with water or spraying mixtures and is somewhat lighter in gravity than the paste lead. One pound of the dry lead will do the work as effectively as two pounds of paste lead. This enables you to make a saving of practically half your freight bill.

Write for full particulars and prices.



THE SHERWIN-WILLIAMS Co.
of Canada, Limited

MANUFACTURERS OF INSECTICIDES
Offices and Warehouses:

Montreal, Toronto, Winnipeg, Calgary, Vancouver,
Halifax, N. S., London, Eng.

and red currants, cherries and gooseberries, making a total of four hundred and twenty-three thousand three hundred and twenty packages, or very nearly one-third of the total shipments from the companies' shippers. If Ontario is not holding her own, then all I have to say is that this company is steadily shipping more each year. They have been selling to the same firms year after year, and at the end of each season very flattering letters are received from purchasers of these cars in the west.

While I say that the west presents a great opening for Ontario fruit, and while our company has made a great success in supplying a portion of their wants, it has only been accomplished after years of patient watching, studying and learning all the ins and outs of the business. This has cost, time, money and hard work, and I do not wonder, nor am I surprised when I hear or read of the many who think all they have to do is to have a car of any kind of fruit brought in and packed, without any experience, in a car and sent west: of course it is only by the merest chance that such shipments turn out well.

The only way that shipments to the west can be successful is for a number of growers to arrange to plant the varieties that will carry well, to agree in the early part of the season that they will pick their fruit at the proper stage of ripeness, furnish a stated regular supply, have it properly packed, placed in good cars promptly that have been well cooled and see that these cars are loaded so that the fruit will carry safely. If this is done then all of the Niagara District will not furnish too much fruit. The railways will then give us regular or special fruit trains making the trip as far as Winnipeg in from three to four days, and more rapid and cheaper transportation to more western cities and towns.

The citizens of Ontario could have peaches, plums, pears, and so forth, landed at a cost of from three to five cents a basket for freight charges—the quantity consumed would be so much greater that the merchant could handle the fruit at a smaller cost per package, and he would not suffer any loss by delay in sales, nor from the pilfering that takes place when shipped by express.

If we had a good fast freight service it would mean a revival of the fruit business, and we older men would be besieging the nursery men for more trees to supply our Canadian markets.

An exhibit which attracted favorable attention at the recent Ontario Horticultural Exhibition comprised ten plates of fine apples grown by D. W. Wright, of Cashmere, State of Washington, U.S.A. They were not entered for competition. The object of the exhibit was to show the effect of extra care and plenty of water in the production of large high colored apples. This exhibit was all the more interesting in view of the well known reputation of apples grown in the State of Washington. The exhibit bore out the high reputation of this fruit. One Northern Spy apple weighed twenty-six ounces. Other varieties included Stayman's Winesap, Winesap, Missouri, Gano, Delicious, Winter White Pearmain, Winter Banana, Ortley (White Bellflower), Arkansas Black.

I think it is very important that we should have one size in the Dominion for apple barrels and that this should be fixed by law.—Prof. Saxby Blair, Kings Co., N. S.

AT LAST

JUST THE OUTFIT YOU ARE LOOKING FOR

The Most Practical, Efficient and Simplest High Pressure POWER SPRAYING OUTFIT ever offered.

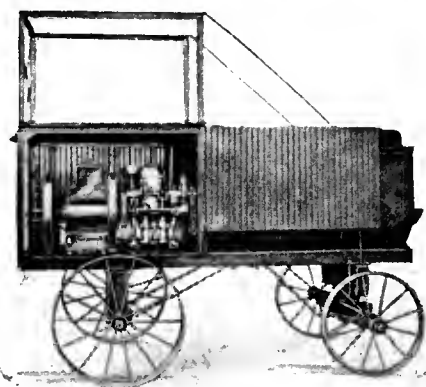
"Goes Like Sixty"

Light Weight

High Pressure

Direct Geared

No Racking Pump Jack



100% Service

Engine can be used for other work all the year round.

Truck makes a capital farm wagon.

Sills of channel steel, with steel platform.

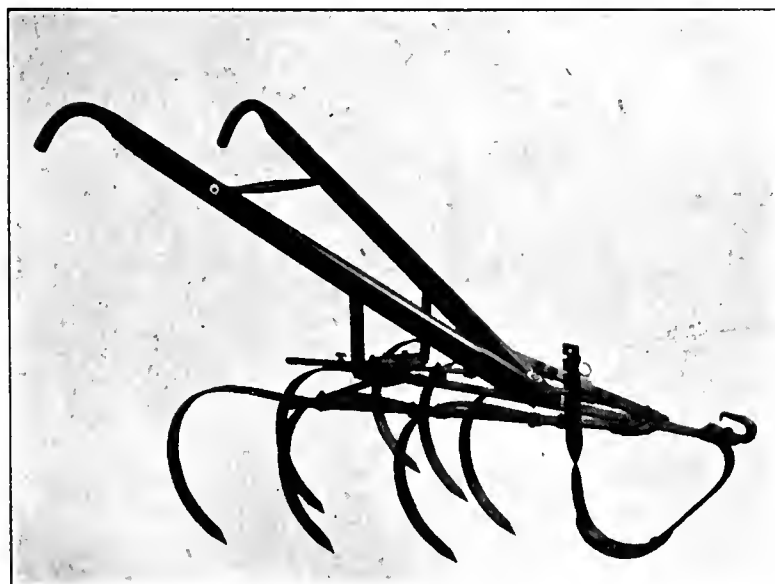
Price of Complete Outfit, Only \$230.00

This includes all Accessories, Engine, Pump, Tank, Truck, Bamboo Extensions, Agitator, Hose, Nozzles, etc.

Do not buy a Sprayer until you have investigated the "Goes Like Sixty" Power Sprayer. Send for Sprayer Catalogue to-day.

GILSON MFG. CO., 244 York St., GUELPH, ONT.

One Horse Spring Tooth Cultivator



HAS NO EQUAL

Read the Following Testimonials:

The One-Horse Spring Tooth Cultivator I got from you is the best I ever hitched a horse to; it does more than you claim.

W. P. WILLSON,

Union, Ont.

ANOTHER

The One-Horse Spring Tooth Cultivator that I got from you will equal two others in cleaning out Berry Bushes.

J. INGRAM,

Union, Ont.

If there is not an agent in your locality handling the One Horse Spring Tooth Cultivator, write us to-day. Pleased to give you prices and particulars.

THE HALL ZRYD FOUNDRY CO. LIMITED
HESPELER **ONTARIO**

MAKERS OF PILOT STOVE, RANGES AND FURNACES.



READ THE LABEL

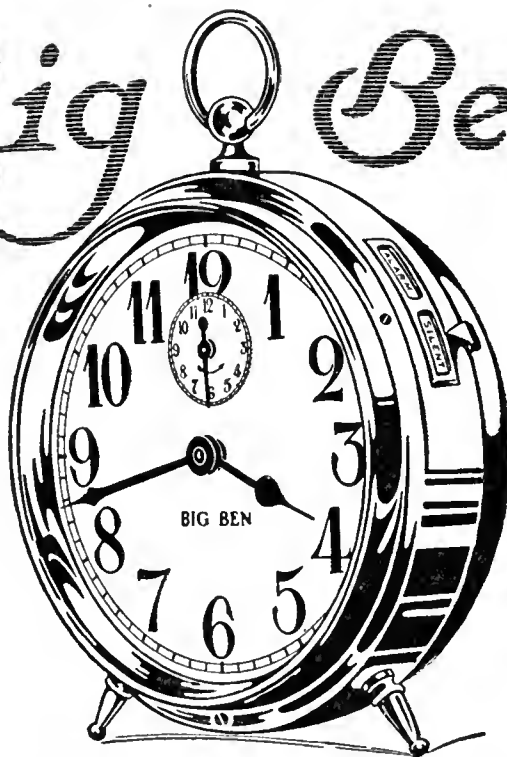
FOR THE PROTECTION OF THE CONSUMER THE INGREDIENTS ARE PLAINLY PRINTED ON THE LABEL. IT IS THE ONLY WELL-KNOWN MEDIUM-PRICED BAKING POWDER MADE IN CANADA THAT DOES NOT CONTAIN ALUM AND WHICH HAS ALL THE INGREDIENTS PLAINLY STATED ON THE LABEL.

MAGIC BAKING POWDER CONTAINS NO ALUM

ALUM IS SOMETIMES REFERRED TO AS SULPHATE OF ALUMINA OR SODIC ALUMINIC SULPHATE. THE PUBLIC SHOULD NOT BE MISLED BY THESE TECHNICAL NAMES.

E. W. GILLETT COMPANY LIMITED
WINNIPEG TORONTO, ONT. MONTREAL

Big Ben



Hitch Your Sleeping Schedule to Big Ben

Big Ben will wake you early enough for profitable before-breakfast action. His gentle get-up call starts the day with a flying start on thousands of farms.

For your accommodation he rings TWO WAYS. He'll get you up by degrees or in a hurry. Set him either way you wish—to give one long five-minute ring, or ten short rings at one-half-minute intervals, until you're wide awake.

He stands 7 inches tall; is triple-nickel plated over a tested implement steel coat, the handsomest and truest thoroughbred in the clock world. He has big, bold numerals and hands that show the time plainly at a glance, large keys that anyone can wind easily, and such a pleasant tone that you are glad to get up when he calls.

Big Ben makes early rising easy. He's the leader of the early morning brigade. His cheerful

"good morning" ring calls millions of live wires to action. Thousands of successful farms are run on a Big Ben schedule. He starts you off right in the morning and keeps you right all day. From "Sun up" to "Lights out" he regulates your day. He'll work for 36 hours at a stretch and overtime, if necessary. The only pay he asks is one drop of oil a year.

He is sturdy and strong—built to last a lifetime. Yet under his dust-proof steel coat is the most delicate "works." That's why his on-the-dot accuracy has won him fame.

Big Ben's wonderful sales are due to his having "made good." His biggest hit has been with folks with the "make good" habit. He stands for success—that's why you'll like him for a friend.

When 3 million families find Big Ben a good clock to buy and 20,000 dealers prove he's a good clock to sell, it's evidence that he is worth \$4.00 of your money. Suppose you trade \$3.00 for him today.

A community of clockmakers stands back of him. Their imprint, *Made in La Salle, Illinois, by W. Estabrook*, is the best alarm-clock insurance you can buy.

Fruit Season at Montreal, 1913

E. H. Wartman, Dominion Fruit Inspector

Commencing the last of April with North Carolina strawberries, and followed by Baltimore and Delaware, quite a trade was done of a very satisfactory nature to buyers. The fruit generally landed in good condition in imperial quart boxes. Our own strawberries followed about June 12th, when American ceased. Our own crop being light good prices ruled all the season.

Raspberries being short long prices prevailed. Complaints were few as to over-facing crates. A few complaints were heard in reference to slack filled boxes, but these grumblers were told by inspectors they were easily examined in this respect, and they should pay according to amount of fruits received.

Following closely came plums, peaches and pears. At times these were in large quantities and of ungraded poor quality, which brought low prices, but good large graded fruits of these kinds brought good prices all season.

The breakage in six and eleven quart baskets that were in car lots was large, due partly on account of poor material in baskets and loading too deep when the whole car was in one compartment. To avoid this three compartments by stanchions and not over seven feet high may be the remedy.

Our apples as a whole were poor. This is verified by the large percentages of number twos and number threes. Some particularly fine lots went forward from favored places where conditions were good. There were 209,025 barrels of apples exported from Montreal, against 300,000 barrels last season, and the record for the port is over 700,000 barrels. Some of the conditions on arrival at this port were anything but satisfactory but I am glad to announce conditions were generally good in eight hoop barrels well coopered and dry. I examined two cars that arrived in a soaked through and through condition. The fruit was good. The effect of too much moisture is very damaging to both fruit and barrels. The wood so softened, heads and staves warp, nails do not hold, liners slip out, causing in one case ten barrels to break open before reaching the steamer, and many more would break open when lowered for piling in the hold. We have to draw on our imagination as to where this excessive wetting came from. The car seemed quite water proof. Likely they were piled in the orchard or at the station or on the dock unprotected. There must have been carelessness somewhere which would be a great loss to the shipper. The shipments of pears were the largest on record in boxes and barrels. The varieties were Anjou, Keiffer, Duchess and Bartlett.

One steamer left for London with six cars of fruit. Of these only twenty-four barrels were of apples, the rest being pears. In reference to our Elberta and Crawford peaches that went forward the system of packing and quality of fruit was excellent, and no doubt would meet with good results. The inspectors at this port were obliged to brand several lots marked number one that lacked in grading and quality. These lots were no credit to the packers. The grading and packing generally speaking was never better. This should increase our trade wherever they are sent and bring credit to our country.

A large association can take more effective measures for ensuring a first class pack than a small association, and thus the standard of quality will be raised.

MAX STOLPE**Landscape Architect**

Ex-Superintendent Royal Gardening Institute
Saxony - Germany
Holder of Gold and Silver Medals

Artistic Plans, Sketches furnished for all kinds of LANDSCAPE CONSTRUCTION WORK.

Ornamental Trees, Shrubs, Conifers, Hardy Perennials, etc.

ASK FOR PRICE LIST

17 Main Str. East - HAMILTON, Ont.

Phone 148

This Gas
Lamp From
Makes Coal
Its own Oil

**The "FAULTLESS" Lamp**

Simplest, Strongest, most Beautiful and Perfect Portable Lamp in the World

Cannot Explode

Can Roll it on the Floor while Burning

Requires No Cleaning

Costs Less than One Cent a Night to produce Three Hundred Candle Power of Bright White Light

Write for circular

MACLAREN & CO., Main St., Merrickville, Ont.

The Call of the North

DO you know of the many advantages that New Ontario, with its millions of fertile acres, offers to the prospective settler? Do you know that these rich agricultural lands, obtainable free, and at a nominal cost, are already producing grain and vegetables second to none in the world?

For literature descriptive of this great territory, and for information as to terms, homestead regulations, settlers' rates, etc., write to

H. A. MACDONELL

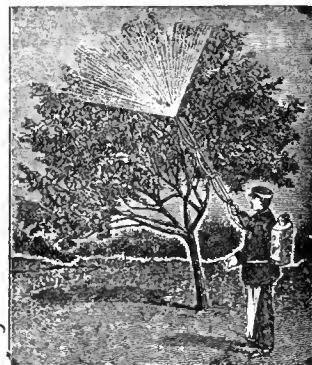
Director of Colonization

Parliament Bldgs., TORONTO, Ont.

**SMALL FRUIT PLANTS**

Gooseberries, Josselyn! Josselyn!! Red Jacket, Downing, Pearl, Houghton.—Currants, Perfection! Perfection!! Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Black Victoria, Boscoop.—Raspberries, Herbert! Herbert!! Herbert!!! Guthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry, — Garden Roots, Asparagus, Rhubarb. Write for Catalogue.

WM. FLEMING, Nurseryman, 496 - 4th Avenue W., OWEN SOUND, ONT.

**Sprayers****Sulfur Dusters**

For Fighting Every Disease of Cultivated Plants

Knapsack, Pack Saddle or Horse Drawn Power Sprayers

Send for Catalogues and particulars to: **VERMOREL** Manufacturer, VILLEFRANCHE (Rhône), FRANCE



Progressive Jones Says:

“Watch for this Sign”

If you want to get right on the fertilizer question, friend, take my advice and visit the nearest agency for

Harab FERTILIZERS

You will know the Harab agency by the sign shown above. It will be found over the door of our dealer in your nearest town or village. Every agent is thoroughly posted about profitable fertilizing. I say here—that fertilizing the Harab way is like sowing pennies to harvest dollars, for it not only gingers up the present profits by providing a bigger crop—but also nourishes the soil for future dividends.

Every one of the Harab Fertilizers is a proven success—one of them is the right fertilizer for your soil and for the crop you wish to raise. Harab experts will give your enquiry individual attention. By their aid your proper fertilizer is easily selected.

The Harris Abattoir Company have an interesting booklet of information about their twenty-five successful fertilizers.

Just write for a copy to-day and keep a weather eye open for the Harab sign—visit the Harab agency.

Years for bumper crops.

Progressive Jones



Fertilizer Department


The Harris Abattoir Co., Limited
Toronto

BLACK KNIGHT

STOVE POLISH

FOR BRIGHTNESS
BLACK

A PASTE
NO WASTE



AND LIGHTNESS, USE
KNIGHT

NO DUST
NO RUST

THE F. F. DALLEY & LTD. HAMILTON, ONT.

PERSISTENT SPRAYING WITH A MASSEY-HARRIS SPRAYER PAYS BIG RETURNS

Long experience with Fruit Growers has enabled us to produce a
Power Sprayer adapted to the most difficult conditions.

Double Cylinder Vertical Pump with Bronze Plungers.

Tank is made of selected Cypress put together by Experts.

Simple, Direct Connection between Engine and Pump—no Sprocket
Chains to get tangled in branches of trees.

Agitator is positive in its action and is operated from the top—no
holes through side of Tank to leak.

The Cab protects all working parts.

Front Wheels turn under the Frame.

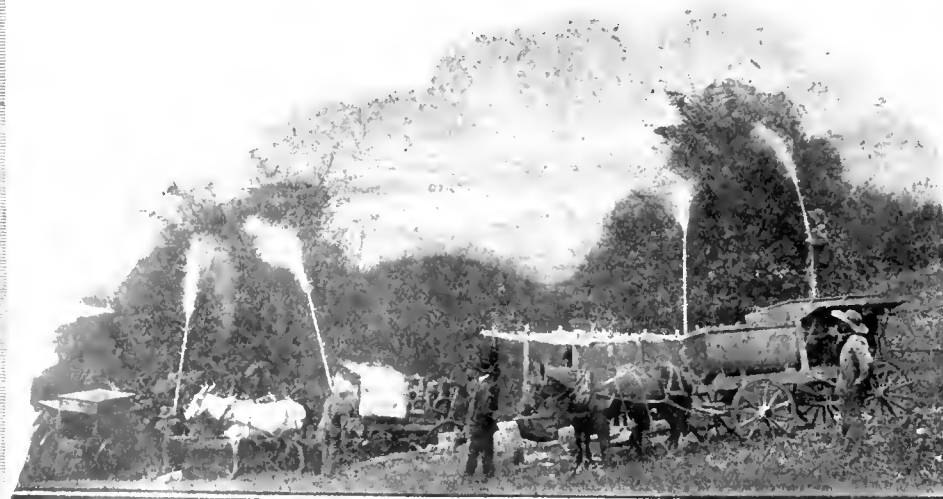
Engine is Hopper-cooled; runs in any weather and on the steepest
side-hill; is efficient and economical in its operation.

MASSEY-HARRIS CO., Limited.

Head Offices—TORONTO, CANADA.

Branches at—Montreal, Moncton, Winnipeg, Regina, Saskatoon, Swift Current,
Calgary, Yorkton, Edmonton.

— Agencies Everywhere —



United States Activities

At a conference of fruit growers held at Spokane in connection with the annual national apple show, November 17 to 22, the gathering under the leadership of E. H. Shepard, editor of "Better Fruit," went thoroughly into the question of taking measures to secure the adoption of a standard apple box and pack. The bill finally drafted for presentation to Congress contains the following provisions: (1) Dimensions, 18 x 10½ x 11½, inside measurements, of 2,173½ cubic inches; (2) Boxes containing less than this number of cubic inches to be marked "Short Box;" (3) Boxes to be stamped with number of apples contained, style of pack used, name of "person, firm or organization which first packed them or caused them to be packed, locality where grown and variety, a variation of three from the actual number contained being allowed;" (4) Apples packed and offered for sale to be "well grown specimens of one variety, reasonably uniform in size, properly matured, and practically free from dirt, insect pests, diseases, bruises and other defects;" (5) Violations of the Act, or offering apples for sale in a standard box other than those originally packed in it, without first obliterating the markings, to be punished by penalty of one dollar a box up to one hundred dollars on any one shipment.

COLD STORAGE RESULTS

In the discussion a strong sentiment showed itself in favor of a decided and immediate action in the direction of providing proper facilities for the manufacture of fruit by-products of all kinds.

BY-PRODUCTS ORGANIZATION

A valuable address was given by A. W. McKay of the United States Department of Agriculture setting forth the results of experiments with Northwestern apples in cold storage. One set of experiments showed conclusively that the percentage of decay is greater when apples are placed in cold storage immediately after picking than when storage is delayed; another that a storage temperature of thirty-two degrees gives better results than one of thirty degrees; a third, that picking before the proper degree of ripeness has been obtained results in high percentage of decay compared with more matured fruit.

Items of Interest

A Mississippi inventor has patented and put on the market a new collapsible crate that folds into small space for storage and can be put into box form in a few moments without the use of nails. This crate may be utilized for shipping berries, fruit, vegetables and poultry. The two sides and two ends are permanently hinged together with wire hooks. The top and bottom when slipped into place are held by the same hooks. Two of the hooks are loose so that they can be clamped over the cover to hold it in place.

The annual use of a medium quantity of manure is better than either too little or too much. Demonstration orchards receiving over ten loads of manure per acre yearly, with one exception, have not yielded so much as those receiving from six to ten loads.—H. K. Revell, Northumberland Co., Ont.

Education is the first and most important step to take before you can start a successful cooperative association.—James E. Johnson, Simcoe, Ont.

GLADIOLI At Less Than Wholesale Prices

America—The standard pink, 1½ in., \$1.50 per 100.

Taconic—Bright pink (perfect), 1½ in., \$4.00 per 100.

Klondyke—Light Yellow, Crimson, Maroon blotch (fine), 1 in., \$1.00.

Augusta—White, 1 in., \$1.00.

Mixed—\$1.00—25 of each at 100 rates. Express charges collect.

H. P. VAN WAGNER

R. R. NO. 5 HAMILTON, ONT.



A Garden of Beauty and Fragrance

WHETHER you love the dear old Marigolds, Heliotrope, Nasturtiums and Petunias—the gorgeous Poppys and Asters—the many-hued Sweet Peas—the heavy-scented Nicotiana—or the huge and picturesque Ricinus—you'll find in Ewing's Catalogue the particular varieties which will make your flower garden a real satisfaction.

Ewing's Reliable Flower Seeds have been delighting beauty lovers for more than forty years. Write for Illustrated Catalogue to-day, and if your Dealer hasn't Ewing's Seeds, order from us direct.



THE WILLIAM, EWING CO., LIMITED,
Seed Merchants,
McGill St.,
MONTREAL.

Prune 3 trees

in the same time your neighbor is pruning one tree. Work from the ground.

SAVE time and money and do better work by pruning your orchard and shade trees with the

MONARCH PRUNER

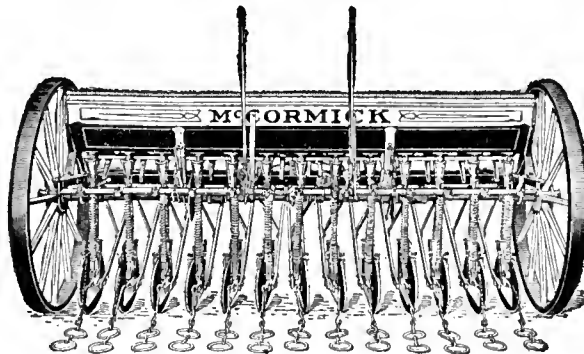
No ladders required. No injury to the trees. No stripping of the bark or bruising the limbs. The Monarch cuts clean and smooth leaving no scars or stumps. One thrust severs a large branch. Saw blade attached in ten seconds. Removes dead limbs in a jiffy. Thousands of orchardists endorse them.

In an ordinary orchard the saving on one day's work will more than pay for a Monarch. A lifetime of service will not wear it out. Extra saw blades can be secured as needed. Satisfaction guaranteed or money back. For sale by all live dealers. If your hardware man does not handle the Monarch write us direct.

Monarch Pruner & Mfg. Co.
1310 Lafayette St.
Detroit, Mich.

FRANK H. COX, Dist. Agt., BEAMSVILLE, ONT.

McCormick Drills For Eastern Canada



A McCORMICK drill prepares the best possible seed bed, and McCormick drills are longest-wearing. Any man who owns one of these implements will assure you that these are facts. When you buy a drill, buy a McCormick.

McCormick single disk and hoe drills have continuous axles, strong, light, thoroughly braced frames of angle steel, and durable, wide running drive wheels. They have a double run force feed which adapts them perfectly to the sowing of all kinds of seed.

Bearings are simple, as nearly as possible dust-proof, and easily oiled. Grain boxes are of large capacity, and they are too firmly supported to allow sagging.

See McCormick drills at the nearest IHC local agent's. All their features are explained in our catalogues. Get catalogues from the dealer, or drop a line to the nearest branch house.

International Harvester Company of Canada, Ltd

Hamilton, Ont.
Ottawa, Ont.London, Ont.
Quebec, P. Q.Montreal, Que.
St. John, N. B.

These machines are built at Hamilton, Ont.





130-Egg Incubator and Brooder ^{Both For} \$13.90

If ordered together we send both machines for only \$13.90 and we pay all freight and duty charges to any R. R. station in Canada. We have branch warehouses in Winnipeg, Man. and Toronto, Ont. Orders shipped from nearest warehouse to your R. R. station. Hot water, double walls, dead-air space between, double glass doors, copper tanks and boilers, self-regulating. Nursery under egg tray. Especially adapted to Canadian climate. Incubator and Brooder shipped complete with thermometers, lamps, egg testers—ready to use when you get them. Five year guarantee—30 days trial. Incubators finished in natural colors showing the high grade California Redwood lumber used—not painted to cover inferior material. If you will compare our machines with others, we feel sure of your order. Don't buy until you do this—you'll save money—it pays to investigate before you buy. Remember our price of \$13.90 is for both Incubator and Brooder and covers freight and duty charges. Send for FREE catalog today, or send in your order and save time.

Write us today.
Don't delay

WISCONSIN INCUBATOR CO., Box 316, Racine, Wis., U. S. A.

FREIGHT
AND DUTY
PAID

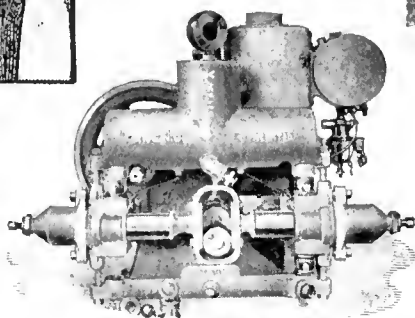


"FRIEND" Sprayers



Western King

If you have a power sprayer, EXCHANGE engine and pump for our POWERFUL UNIT MOTOR-PUMP and PROPELLER AGITATOR, or sell it and buy a whole new outfit. "FRIEND" outfits are now made in many styles, TO SUIT YOUR TASTE, in-



The "Friend" Motor-Pump

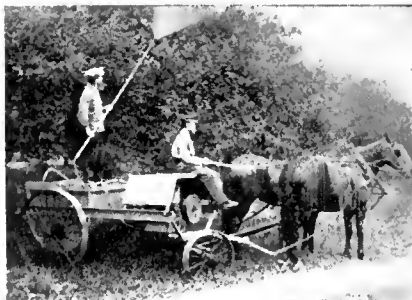
Mr. Fruit Grower

You have heard of the celebrated

"Friend" Power Sprayer

But you have not heard of the 1914 MODELS.

Western King and Queen



Western Queen

cluding motor-pumps, & lifts on bed without trucks, and complete machines—built in large and small sizes. The SIMPLEST, MOST COMPACT, MOST POWERFUL and FINEST WORKING power sprayers ever produced. Many Westerns sold in Canada last year to growers who are STAUNCH FRIENDS this year.

WRITE FOR CATALOG TO-DAY,
STATING REQUIREMENTS.

"FRIEND" MFG. CO., GASPORT, NEW YORK

Nova Scotia Fruit Growers

(Continued from page 31)

the thorough work done by the Agricultural Department in the control of the brown tail moth and the San Jose Scale.

A very pleasing feature of the convention was the presentation to R. W. Storr, of a resolution of congratulation on having attended fifty consecutive annual meetings of the association, not having missed a meeting since its organization fifty years ago.

The officers for the ensuing year are: President, F. W. Bishop, Paradise; vice, A. E. McMahon, Aylesford; secretary-treasurer, Mr. K. Ells, Port Williams; delegates to the fourth fruit conference, S. B. Chute, M. K. Ells, W. W. Rinco, S. C. Powker.

The following resolutions passed:

That we place on record our sorrow at the death of Alex. McNeill.

That because the Provincial Exhibition is held too early to make a creditable display of winter fruit on account of its immaturity, we recommend that winter varieties of apples be cut out of prize list and more money be offered on the early varieties to insure a more attractive display.

That we ask the Federal Government to define a number three grade of apple, with a view of raising the standard of the present pack.

That we join with the other associations in asking for a grant of \$2500 per year for the National Fruit Growers' Association.

That the Valley exhibition be held at a later date.

That we recommend the appointment of a provincial plant pathologist.

GLADIOLI

GROFF'S HYBRIDS are now more largely grown in the United States and Canada, than any other strain. They are in good demand in AUSTRALASIA, and English orders have nearly exhausted some varieties.

AMERICA (Groff's 119) stands easily at the head of commercial varieties.

PEACE, WAR, DAWN, BLUE JAY, LAVANDULA, PEACHBLOW, and others, will soon be found in all gladioli lists.

We try most of the European kinds, as they come out, but so far have found very few, that are likely to secure a permanent place.

CATALOGUES ON APPLICATION

CAMPBELL BROS.
SIMCOE, ONT.



We Solicit Your
Consignments

Send for
Shipping Stamp

Branch Warehouses: Sudbury,
North Bay, Cobalt, Cochrane
and Porcupine

Good Prices Always

For Your Fruit and Vegetables

OUR facilities enable us to realize top prices at all times for your fruit, vegetables, or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge, at **SUDBURY, NORTH BAY, COBALT, COCHRANE AND PORCUPINE**. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

H. PETERS
88 Front St. East, Toronto

References: The Canadian Bank
of Commerce, (Market Branch)
and Commercial Agencies.



SEEDS

**SURE GROWERS
GOVERNMENT TESTED**

Write for Catalogue

Wm. RENNIE Co., Limited

Cor. Adelaide and Jarvis Streets, TORONTO.

THIS WASHER MUST PAY FOR ITSELF.

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse, but, I didn't know anything about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right," but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now, this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way. So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing the clothes. Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges, nor break buttons, the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight, too. Surely that is fair enough, isn't it.

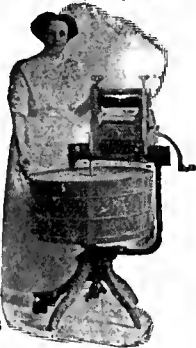
Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 60 cents a week 'til paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me personally:

K. E. MORRIS, Manager, 1900 Washer Co., 357 Yonge St., Toronto, Ont.



ESTABLISHED 1856

SIMMER'S SEEDS

—Have Stood the Test for—
NEARLY 60 YEARS

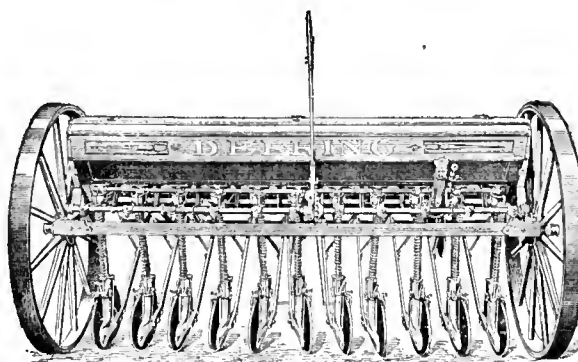
That Means - - THE QUALITY IS RIGHT

CATALOGUE for 1914 is now ready, and is FREE to all who write for a copy.

It contains a complete list of the very best in Vegetable and Flower Seeds—the kinds that are sure to please. Write for a copy NOW.

J. A. SIMMERS, Ltd., TORONTO, Ont.
BULBS SEEDS PLANTS

Deering Drills



GIVE your seed a chance to produce a record crop by sowing it with a Deering drill. Deering disk and hoe construction puts the right amount of seed in the right position at the bottom of the furrow, to insure your getting a full even stand of grain.

No matter whether your ground is hard or soft, gravel or clay, smooth or rough, level or hilly, there is a Deering drill in the line that will plant your seed as it should be planted.

Examine Deering drill construction and the many features. Note the light draft, the large capacity grain boxes, the double-run force feed that handles all kinds of grain and seed, the ease of regulation to suit soil and seed—and a dozen other points to grow enthusiastic over.

See the drills themselves at the I H C local agent's place of business. Our catalogues tell you all the features of all the types. Get catalogues from the local agent, or write the nearest branch house.

International Harvester Company of Canada, Ltd

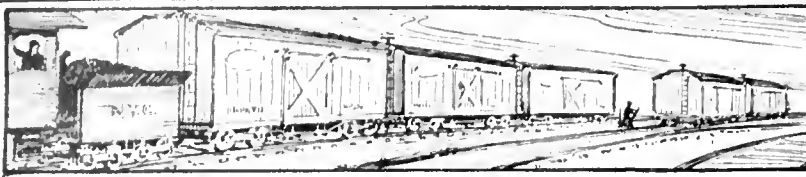
Hamilton, Ont.
Ottawa, Ont.

London, Ont.
Quebec, P. Q.

Montreal, Que.
St. John, N. B.

These machines are built at Hamilton, Ont.





Why Not Cut Off the Two Cars of Filler?

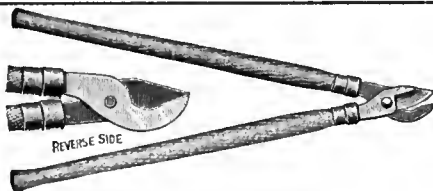
It takes 400,000 cars to carry American Fertilizers to our farmers and planters every season. Forty per cent.—2 cars out of 5—of this stuff is Filler, which requires 160,000 cars! Order less filler, higher grade and

Nitrate of Soda

for your active Nitrogen and save freight bills.

The greater productive capacity of high-grade fertilizers without so much filler means a greater outbound tonnage for railroads and greater purchasing power for farmers, so that railroads and everybody would be benefited.

DR. WM. S. MYERS, Chilean Nitrate Prosganda
NO BRANCH OFFICES 25 Madison Ave., New York



Cronk's Pruning Shears

To introduce a high-grade pruning shear at a very low price, we are now offering direct, provided your dealer does not have them, our 25-inch No. 09½ guaranteed pruner at \$1.25 per pair, via parcel post, prepaid; cash with order. **CRONK & CARRIER MFG. CO., ELMIRA, N. Y.**

Quebec Fruit Growers' Convention

The annual convention of the Quebec Pomological Fruit Growing Society was held in Westmount, Quebec, during December. In his presidential address, Rev. Father Leopold, Oka, an illustration of whom appears on page thirty-three of this issue, referred to the light crop of apples last fall in many districts, that had been caused by the unfavorable nature of the season. Tent caterpillars had defoliated many orchards where spraying was not practised. Power sprayers were becoming more popular, eleven now being operated in the province. The orchards of the La Trappe Monastery at Oka last season yielded two thousand five hundred barrels. While many growers have had fair success leaving trees in sod, Father Leopold stated that it was being demonstrated in the experimental orchards at Rougemont, St. Hilaire, and Abbotsford that stirring of the soil in May and June followed by a



BUY CARNIOLANS IN CARNIOLA

Pure Carniolan Alpine Bees
Write in English for Booklet and Price List. Awarded 60 Honors.

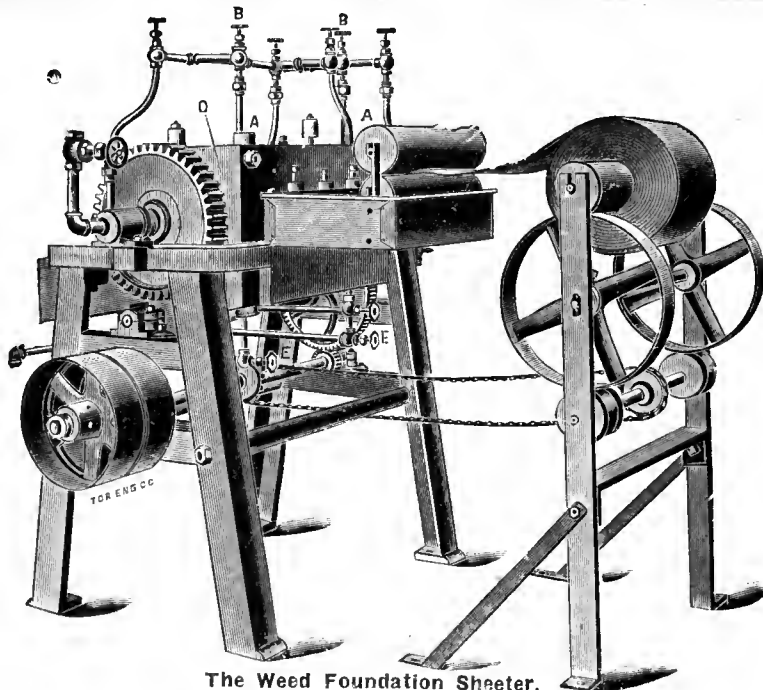
Johann Strgar. - Wittnach

P.O. Woeheiner Feistritz

Upper-Carniola (Krain), Austria

COMB FOUNDATION

Made by the "Weed Patent Process"



The Weed Foundation Sheeter.

FOUNDATION made by this process excels all other in strength of texture. This combined in nice, straight uniform sheets, with good cell walls and thin base, gives it world-wide reputation for general excellence of quality. So much better than the ordinary, and costs no more—Try it.

Customers Wax made up by "Weed Patent Process"

Beeswax taken in payment of making at trade prices if desired

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BRANTFORD, ONTARIO

THE CHAS. E. HOPPER COMPANY BEEKEEPERS' SUPPLIES

Sole Distributors of

ROOTS GOODS

General Agents for

DADANTS FOUNDATION

We also Handle

HAM & NOTT GOODS

Poultry Supplies

Seeds

Write for a Catalogue

185 Wright Avenue, TORONTO, Ont.

FOR SALE

Italian Queens and Bees by the pound. Ready for delivery April 1st. Having over 600 colonies of bees and 500 nuclei from which to draw, we expect to fill all orders very promptly. For a number of years we have been constantly improving in stock with commercial queen-rearing in view. Now we are in a position to guarantee satisfaction to our customers. Untested queens, each 75c, 6 \$4.25; tested, each \$1.25, 6 \$7.25. Bees by the pound without queen, 1 pound \$1.25, 5 \$4.25. Write for complete price list.

BROWN & BERRY

HAYNEVILLE - - ALABAMA

A FARMER'S GARDEN

IS without real serious meaning to many thousands of farmers because they think it is too hard work or it is not convenient to work a horse. So many farmers fail to understand what truly wonderful possibilities there are in modern hand tools.

IRON AGE Wheel Hoes and Drills
(Now made in Canada)

do all of the sowing, hoeing, cultivating, weeding, furrowing, ridging, etc., in any garden with better results, far less work and some real pleasure for the operator. 38 or more combinations at \$3.00 to \$15.00. Ask your dealer about them and write us for new booklet, "Gardening with Modern Tools" also copy of our paper "Iron Age Farm and Garden News"—both are free.

The Bateman-Wilkinson Co., Limited
462 Symington Ave., Toronto, Ontario.



For Sale

Cedardale Fruit Farm, 50 acres, finest farm in Norfolk county for fruit, tobacco and poultry raising, one and a quarter miles from Simcoe, and a quarter mile from New Lake Erie and Northern Electric Road.

Buildings in A1 condition. House, bungalow style, frame, nine rooms, surrounded by lawns, drives and ornamentals. Outbuildings, two good barns, one recently built costing \$2,500, with cement basement and up-to-date fixtures. Four poultry houses and cement hoghouses, and two good wells.

Bearing fruit trees consist of 50 apples, 500 peach and Bartlett pears, 1 acre strawberries, 1 acre raspberries, set last season. The farm is of sandy loam soil, adapted to strawberries, being protected by thirteen acres of standing timber valued at \$3,000.

Farm could be divided for speculation into three sub-divisions, each with timber at rear and fronted with maples.

THIS IS A SNAP

For further particulars apply

CEDARDALE FARM

R. R. No. 3 - SIMCOE, ONT.
O. MARSHALL, Proprietor

PRIZE DAHLIA ROOTS

15 for one dollar by mail prepaid, 15 larger roots one dollar by express, not prepaid. Low rate to Horticultural Societies who give Dahlias as premiums.

GEO. E. EGERTON

112 CHALMERS ST. - GALT, ONT.

STRAWBERRIES

Your copy of our Strawberry Catalogue is now ready. A Post Card will bring it. It describes all the best varieties of Strawberries and Raspberries. Cultural directions and lots of other valuable information.

THE LAKE VIEW FRUIT FARM

H. L. McConnell & Son - Grovesend, Ontario

TO THE TRADE

KELWAY'S

(OF LANGPORT, Eng.)

RENOWNED PLANTS & SEEDS

as advertised, are offered at SPECIAL RATES TO CANADIAN NURSERYMEN.

NO AGENTS
NO BRANCH STORES

Our House is open to every legitimate Nurseryman and Seedsmen in the Dominion. ASK FOR PRICES

KELWAY & SON, THE HOUSE OF QUALITY
LANGPORT, ENGLAND.

FOR SPRING, 1914

We have a large assorted stock of the best varieties of FRUIT and ORNAMENTAL TREES, SHRUBS, ROSES and PERENNIALS.

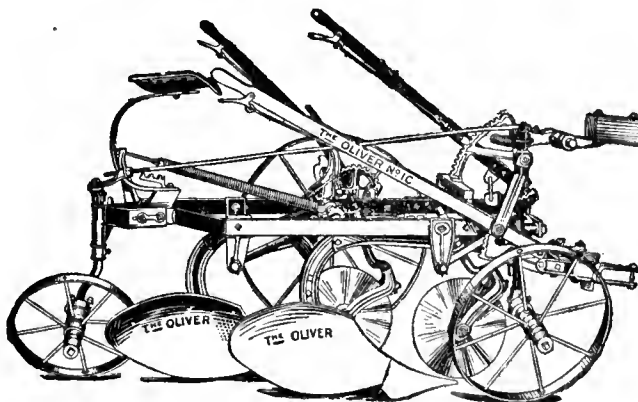
A specially selected stock of Specimen Evergreens, Box and Bay Trees, Rhododendrons, Kalmias and other plants in demand for modern gardening.

Plans and estimates for landscape work.

ROSS & SON

Toronto Nurseries - 1167 Queen St. E.

Oliver Plows



OLIVER Plows for Eastern Canada stand in a class by themselves as satisfaction givers.

The Oliver plow line includes walking plows, three-wheel sulkies, walking gangs, hill-side plows, high and low lift gangs, and riding cultivators. There are plows in the line which are specially adapted for most Eastern Canadian conditions. Among these are the Oliver 1-C sulky and 1-C gang. In both these plows most of the weight of the plow is carried on the two furrow wheels which, of course, ride on a smooth surface all the time. There is a spring on the land wheel which, in connection with the two bails on which the plow is hung, insures an even depth of plowing.

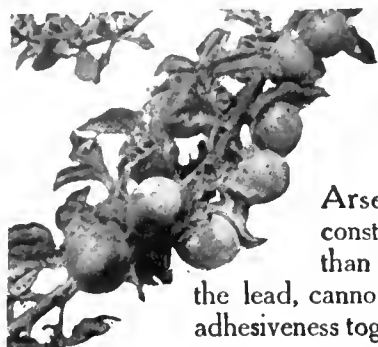
You can see any plow in the Oliver line at the place of business of the IHC local agent. If you will tell him what kind of plowing you want to do, he can show you an Oliver plow that will do your work best. See him for catalogues and full information, or write the nearest branch house.

International Harvester Company of Canada, Ltd

At Hamilton, Ont.; London, Ont.; Montreal, P. Q.; Ottawa, Ont.;
St. John, N. B.; Quebec, P. Q.

Oliver plows are built at Hamilton, Ont.





There's a great difference in spray adhesiveness

Arsenates of Lead, which are coarse in construction and contain more arsenic oxide than will remain permanently combined with the lead, cannot be adhesive. To obtain maximum adhesiveness together with effectiveness and safety, use



TRADE MARK

**THE CANADA PAINT CO.
LIMITED**

Neutral Arsenate of Lead (Paste)

This arsenate is neutral in character and so cannot russet the fruit or burn the foliage. This means unblemished fruit and more of it. This arsenate is sufficiently strong in poisoning power to destroy all leaf-eating insect pests.

It has a peculiar adhesiveness that enables it to remain on the foliage in spite of ordinary rain. It is very fine in texture and is light in gravity, so stays well in suspension. It mixes readily with Bordeaux Mixture or Lime Sulphur without danger of injuring the foliage or the fruit.

As manufacturers of insecticides we have been able to obtain a new formula for the manufacture of dry Arsenate of Lead.

C. P. LIGHT GRAVITY

Dry Arsenate of Lead

All the good qualities of our paste lead are embodied in this product, and it has the advantage of being proof against deterioration, and so can be kept over from one season to another. Half a pound of the Light Gravity Dry Arsenate goes as far as a pound of paste lead. To many orchardists and gardeners considerable saving in freight may be effected by using this material. It mixes readily with water or other spraying mixtures, and can be dusted on such plants as potatoes if desired. Descriptive folders and prices sent on request.



TRADE MARK

**THE CANADA PAINT CO.
LIMITED**

PAINT-VARNISH & DRY COLOR MAKERS-LINSEED OIL CRUSHERS

MONTREAL-TORONTO-WINNIPEG-CALGARY-HALIFAX

OXIDE MINES-RED MILL-QUEBEC

corn crop was productive of the best results.

The advisability of heating orchards during a frost such as occurred last May was also discussed. Although such a killing frost might occur only once in ten years the expense of providing burners or smudge materials might be more than made up by the saving of a single crop. Growers in Colorado have adopted heating outfits in many cases and have found that they can offset the effects of ten or twelve degrees of frost.

OFFICERS ELECTED

Hon. Pres., Rev. Father Leopold, La Trappe; president, Prof. T. G. Bunting, Macdonald College, Que.; vice-president, R. A. Rousseau, Acton Vale; secretary-treasurer, Peter Reid, Chateauguay Basin; directors—G. B. Edwards, Covey Hill, Rev. H. A. Dickson, Rectory Hill; G. P. Hitchcock, Massawippi; J. Crossfield, Abbotsford; A. D. Verreault, Village des Aulnaies; F. X. Gosselin, Ste. Famille; N. E. Jack, Chateauguay Basin; W. H. Thompson, Hudson Heights; Robert Brodie, Montreal.

A paper dealing largely with technicalities in orchards was read by Mr. J. M. Fisk, of Abbotsford. In the discussion which followed, Mr. Brodie maintained that the Fameuse apple was not dying out.

The "FRIEND" Hand and Power Outfits are still in the land. Don't buy any spraying equipment until you have seen the new catalogue just issued by the "Friend" Mfg. Co. of Gasport, N.Y. Get their best prices.

Send your consignments of APPLES to the
Home Country to

Ridley Houlding & Co.

COVENT GARDEN

LONDON, ENGLAND

who specialize in APPLES and PEARS during the Season. Personal attention, prompt account sales and remittance

Correspondence invited

Roses Roses

Irish, Dutch and American. Hybrid Perpetual, Hybrid Teas and Climbing. Strong 2 year field-grown bushes that will bloom the first year—none better, none cheaper.

ALSO

Trees, Shrubs, Vines, Perennials

Get Catalogue

A. W. GRAHAM

St. Thomas - Ontario

Better Spraying

Write For
FREE
Spraying
Guide

Brown's Auto Spray does its work thoroughly. Actually does banish blight, disease, insects in less time, with less work and less solution. Keeps vines, trees, plants in perfect condition; 40 different sizes and styles.

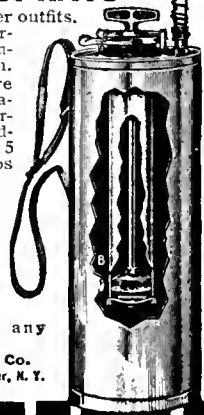
BROWN'S AUTO SPRAYS

Hand and power outfits. 300,000 farmers, orchardists, gardeners now use them.

Spray No. 1, here shown—4 gal. capacity—easily carried over shoulders—suitable for 5 acres of field crops or 1 acre of trees—has Auto Pop Non-clogging nozzle—all kinds of sprays.

Larger sprayers use Brown's Non-Clog Atomic Nozzle. Cannot clog—sprays any solution equally well. Fits any sprayer.

The E. C. Brown Co.
57 Jay St., Rochester, N. Y.



Silver black, patched, blue, and red Foxes supplied for stocking fur farms.

\$40.00 per pair paid for sound live Mink



JOHN DOWNHAM, Strathroy, Ont.

BLACK CURRANTS

We have some excellent plants of the Black Naples variety, grown from the most productive patch in the district. Also some Lawton Blackberry plants.

Apply for prices.

J. E. HENRY & SON - WINONA, ONT.

Peerless Guaranteed Fencing

Strongly made and closely spaced—making it a complete barrier against large animals as well as small poultry. Top and bottom wires No. 9—intermediates No. 12 wire—made by the Open Hearth process which time and other tests have proven to be the best material made for the manufacture of wire fencing. Send for literature. Ask about our farm and ornamental fencing. Agencies nearly everywhere. Live agents wanted in unassigned territory.

The Banwell-Hoxie Wire Fence Co., Ltd., Winnipeg, Man., Hamilton, Ont.

It Pays to Get Real Tested Seeds

For every cent you spend for seeds this spring you expect to reap dollars next fall.

If these fail you, you lose not only the cents you pay for them, but the dollars you should get in crops. You lose the labor, time and use of land in which you plant them.

That's why it is so important to get seeds that are tested and proven.

Carter's Tested Seeds are really tested by actual growing on the famous trial and testing grounds of James Carter & Co. at Raynes Park, London, England. They are tested for purity, germination, quality and production. At the same time other brands are tested alongside them to make certain that Carter's are superior.

Carter's Tested Seeds have

made a big success in Canada because they have given most profitable results. They are your best seed investment.

Write to-day for a copy of the new Carter Catalogue of flowers and vegetables with all prices in American currency.

Carters Tested Seeds, Inc.
133 A King St. E., Toronto

United States Offices, 100 Chamber of Commerce Bldg., Boston, Mass.

If you are interested in upkeep of Lawn Tennis-courts or Golf-Course, write for the "Practical Greenkeeper." Every Championship Golf-Course in America is today using Carter's Tested Grass Seed.

Carter's Tested Seeds



SEEDS BY ROYAL WARRANT
TO HIS MAJESTY KING GEORGE V

Lots of Luscious TOMATOES

To raise the largest and best quality and most profitable crop of Tomatoes and "garden truck" use DAVIES Special Mixed FERTILIZERS. Send for free booklet The DAVIES Company Wm. DAVIES Limited WEST TORONTO, ONT.



FLOWER POTS

Hanging Baskets and Fern Pans
FOR THE SPRING TRADE

We make the "Standard" Pot, the best Pot in the world—uniform, best of clay, well burned, in every respect superior to all others.

All our pots have rim on shoulder, thus allowing them to be placed together perfectly and preventing breakage in shipping and handling.

Place your Spring Order NOW.

A complete line and large stock of all sizes kept on hand to ensure prompt shipment.

Send for NEW CATALOG and PRICE LIST

The Foster Pottery Co.
HAMILTON - - - ONTARIO
Main Street West

FRUITLAND NURSERIES

are offering for sale a general assortment of first class Fruit Trees, Bushes, Vines and Ornamental Shrubs, etc., at very low prices. Our catalogues are just out. It will pay you to send for one.

G. M. HILL, Box 42, FRUITLAND, ONT.

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalog free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

He referred to an orchard at Havelock, where five barrels to the tree were averaged. Such orchards, where special attention to the standards was paid, were valuable to the province.

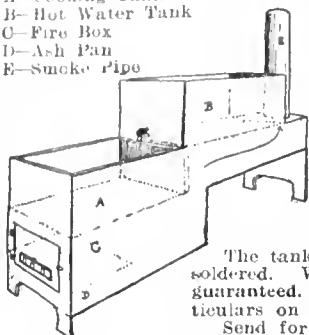
WORK RECOGNIZED

Mr. W. T. Macoun, Dominion Horticulturist, spoke on the extension of the work in connection with the Experimental Farms. There are sixteen of these farms, and several more in prospect, entailing an expenditure of eight hundred thousand dollars each year. In Mr. Macoun's department there are now four assistants who are specialists in their lines of work. These include pomology, plant breeding, ornamental gardening, and vegetable growing. In plant breeding there is a wide field in the originating of new varieties hardy enough for the latitude of Ottawa, and at the same time equal to McIntosh Red and other standard sorts. Recognition has been given by the American Pomological Society to the work already done in originating varieties. Mr. Macoun had just returned from Washington, where he exhibited one hundred and forty varieties, all of Canadian origin. For these he had been awarded a silver medal by the Pomological Society, an honor given only in cases of exceptional merit.

COOPERATION ADVOCATED

A paper on what cooperation had done for fruit growers in Nova Scotia was read by Mr. M. B. Davis, who has recently been

A—Cooking Tank
B—Hot Water Tank
C—Fire Box
D—Ash Pan
E—Smoke Pipe

**Make Your Own Spray**

Home Boiled Lime Sulphur is being used in increasing quantities by leading fruit growers and fruit growers' associations. They find that by making their own spray they can effect a considerable money saving, and at the same time produce a preparation that will do the work thoroughly.

It is an easy matter to make home boiled lime sulphur. The chief essential is a proper spray cooker. We manufacture two kinds of cookers, one with a single tank, and one with a double tank. (See illustration.) They are designed especially for this purpose, and will give the greatest efficiency with the greatest saving of fuel. They can be used for either wood or soft coal.

The tanks are made of heavily galvanized steel, thoroughly rivetted and soldered. Will not leak. They are built to give satisfaction, and are guaranteed. Made in five sizes, capacity 30 to 75 gals. Prices and full particulars on application. Get your outfit now. Write us to-day.

Send for pamphlet illustrating the finest pruning saw on the market.

STEEL TROUGH & MACHINE CO., Ltd., TWEED, Ont.

For Use
in any
wagon,
cart, etc.



No. 190. Horizontal, 50-Gallon

The Right Kind of Sprayer

Means the one that just fits your purpose. You need to consider capacity, pump, engine, pressure, mixing, straining sediment, stability on hillsides, using your own wagon, engine or sprayer with balance of the outfit to fit what you already have. Get the right sprayer for YOUR work and you won't have any cause to be dissatisfied. We show here but three of the 70

IRON AGE

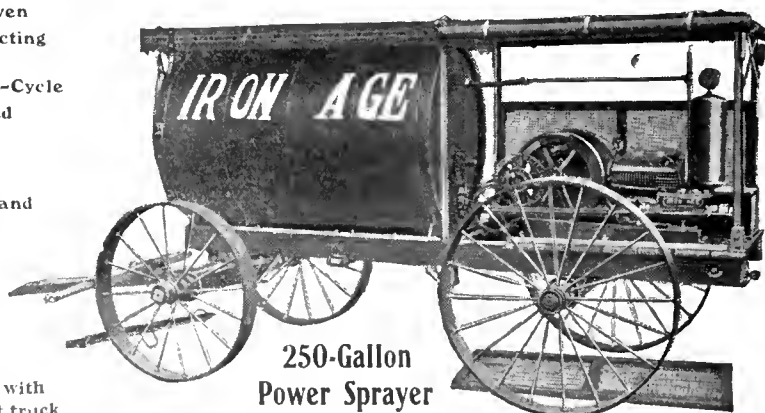
**Bucket, Knapsack,
Barrel, Power, and
Traction Sprayers**

They are built up in units so that you can buy what you need now and add to the outfit later if necessary. All have the best pumps in use on any sprayers—least slip-page among eight of the best in a disinterested test. Solutions touch only brass or galvanized parts. Hemp packing, bronze ball valves, both easy to get at. Pumps outside. Power Sprayers are 50, 100, 150, or 250 gallons capacity. 200 pounds pressure with 6 or 8 nozzles.

Ask your local dealer about this line and write us for our new "Spray" book, spray information and copy of Iron Age Farm and Garden News.

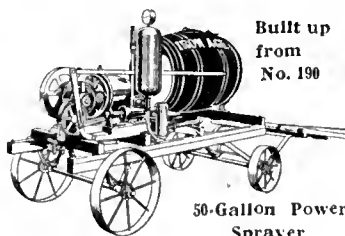
The Bateman-Wilkinson Co. Ltd., 460 Symington Ave., West Toronto, Ont.

Gear-Driven
Double-Acting
Pump
2-H. Four-Cycle
Air-Cooled
Engine
Outside
Sediment
Chamber and
Strainer



Furnished with
or without truck

**250-Gallon
Power Sprayer**



Built up
from
No. 190

**50-Gallon Power
Sprayer**

EGGS

EXPRESS PREPAID—all the standard breeds of Chickens, Ducks, Geese and Turkeys. HIGH-CLASS STRAINS. Write today for catalog describing breeds—also poultry supplies. IT'S FREE.

**J. H. RUTHERFORD, Box 62
Caledon East, Ontario**

**BEZZO'S
Famous Prize Asters**

Plants ready last week in May. Everybody should plant them. Special prices to Horticultural Societies. Prizes at New York State Fair, Canada National Exhibition. Highest awards at Berlin Horticultural Exhibitions. 1911-12-13. Write for prices.

C. MORTIMER BEZZO - BERLIN, CANADA



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KNOW WHAT YOU GET
FREEMAN'S
FERTILIZERS**

**A SPECIAL FORMULA FOR
EVERY REQUIREMENT.**

Do not buy a "A Pig in a Poke."

Send for booklet showing just what Fertilizer you should use and the exact composition of it. Your copy will be sent for a post card.

The W. A. FREEMAN CO., Ltd.
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GREAT CROPS OF STRAWBERRIES AND HOW TO GROW THEM

IS the title of a beautifully illustrated book of expert information written in every-day language by America's most successful strawberry grower. It explains how the Kellogg Pedigree plants are grown on the great Kellogg plant farms in Oregon, Idaho and Michigan. It contains pictures of the best varieties of strawberries, including fall-bearing kinds, and gives full descriptions. It tells how to grow big crops of fancy berries, and how to market them at big prices. Explains in detail The Kellogg Way.

OUR FAMILY STRAWBERRY GARDEN

Whether you have a small garden only or a big farm, you should grow your own strawberries. Kellogg's Big Red Strawberry Garden will produce all the delicious strawberries your entire family can eat, summer and winter. You can have shortcake, strawberries and cream, preserves, jam and canned berries, the year round for less than one cent per gallon. Our Book gives full information.

Strawberries

yield more dollars per acre and give quicker returns than any other crop. Set one acre to Kellogg's Pedigree plants this year, and put from \$500 to \$800 in the bank next year. Our Book tells you how. IT IS FREE.



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SPECIAL GUARANTEED LIME-SULPHUR HYDROMETER

Both specific gravity and Beaume readings; submitted to Mr. Caesar O. A. C., Guelph, and reported "quite satisfactory."

Sent Postpaid on receipt of 80 cents
Also the TYCOS INCUBATOR THERMOMETER, absolutely accurate postpaid, 65c.

PARKE & PARKE Wholesale Druggists
HAMILTON, ONT.

If you are a

MARKET GARDENER

it will pay you to look carefully over our Price List of

SEEDS

POSITIVELY, ABSOLUTELY our seeds will give you satisfaction.

Be friendly Write us about your wants

GEO. KEITH & SONS

Seed Merchants since 1866

124 KING ST. EAST - TORONTO

SAFETY FIRST

THE MOST
Up-to-date
WARNING
Applies

To Those Contemplating Building
GREENHOUSES

And Is Typical of the

PARKES

Up-to-date

CONSTRUCTION

Get our Prices on

Iron Frame, Pipe Frame and All Wood

Also

Ventilating Apparatus and all kinds of
Greenhouse Hardware.

Write for information and Question Blank to

PARKES CONSTRUCTION CO.

1674 King Street E.

HAMILTON - ONTARIO

BUY BRUCE'S SEEDS

The most successful of the market gardeners in Canada, many of them customers for two generations, and some for three, buy Bruce's Seeds, because ever since this business was established by us **sixty-four years ago**, they found they could rely on them in every way, getting better results than from any other seeds.

To these men quality and germination is the big consideration, as their bread and butter depends on their crop.

We would say to the amateur, and also the farmer, who are not customers—

"It Will Pay You to Buy Bruce's Seeds"

for it takes the same time and trouble to plant and care for poor seed as for good, and poor seed means dissatisfaction and loss for a surety.

Write for our 112-page illustrated and descriptive catalogue of Vegetable, Farm and Flower Seeds, Plants, Bulbs, Poultry Supplies, and Garden Tools and Implements, etc. It will be mailed **FREE** to all applicants. **WRITE TO-DAY.**

JOHN A. BRUCE CO., LIMITED

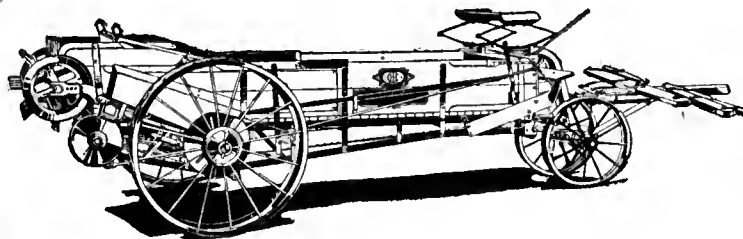
SEED MERCHANTS

HAMILTON

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ONTARIO

International Harvester Manure Spreaders



THE I H C LINE GRAIN AND HAY MACHINES

Binders, Reapers
Headers, Mowers
Rakes, Stackers
Hay Loaders
Hay Presses

CORN MACHINES

Planters, Pickers
Binders, Cultivators
Ensilage Cutters
Shellers, Shredders

TILLAGE

Combination,
Peg and Spring-Tooth,
and Disk Harrows
Cultivators

GENERAL LINE

Oil and Gas Engines
Oil Tractors
Manure Spreaders
Cream Separators
Farm Wagons
Motor Trucks
Thrashers
Grain Drills
Feed Grinders
Knife Grinders
Binder Twine

INTERNATIONAL Harvester manure spreaders have a score of good features in their construction. Each one is the result of careful field experiment.

An I H C spreader is low enough for easy loading, yet it has plenty of clearance underneath. The rear axle is well under the load, rear wheels have wide rims and Z-shaped lugs, insuring good traction under all conditions. Frame, wheels, and all driving parts are of steel. Apron tension is adjusted by a simple device. Winding of the beater is prevented by large diameter, and beater teeth are strong, square and chisel-pointed.

International manure spreaders are built in several styles and sizes, low or high, endless or return apron, for small farms or large. Examination will show sturdiness of construction in every detail. Repairs, if ever needed, may always be had of the local dealer.

Examine International spreaders at the dealer's. We will tell you who sells them, and we will send you interesting catalogues.



International Harvester Company of Canada, Ltd

At Hamilton, Ont.; London, Ont.; Montreal, P. Q.; Ottawa, Ont.;
St. John, N. B.; Quebec, P. Q.



MAN WANTED

to operate greenhouse for Dominion Canners Farms at Wellington. Must have expert knowledge of growing tomato plants in large quantities. Apply, stating experience, salary expected, etc.

M. B. CLARK - WELLINGTON, ONT.

It's easy to have a Beautiful Garden if you deal with

KELWAY & SON

The Royal Horticulturists
Langport, Somerset, England

We pay highest Prices For

RAW FURS

And Remit Promptly

Sixty Thousand trappers send us their Raw Furs. Why not you? We pay highest prices and express charges, charge no commission and send money same day goods are received. Millions of dollars are paid trappers each year. Deal with a reliable house. We are the largest in our line in Canada. Write to-day

Address **JOHN HALLAM, LIMITED**

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HALLAM'S TRAPPERS GUIDE

French or English

A book of 96 pages, fully illustrated. Game Laws revised to date—tells you how, when and where to trap, bait and traps to use, and many other valuable facts concerning the Raw Fur Industry, also our "Up-to-the-minute" fur quotations, sent **ABSOLUTELY FREE** for the asking. 489

Mail Dept. 111 Front St. East, **TORONTO**

appointed an assistant to Mr. Macoun. In a detailed explanation of the workings of the United Fruit Company of Nova Scotia, Ltd., the speaker described the success which has attended its operations. Last year about three hundred and sixty-seven thousand barrels of apples were dealt with, and by scientific handling of the markets by the agents and by the chartering of special steamers, the growers sometimes netted handsome returns. The organization also bought supplies on the cooperative plan.

BEES AND FRUIT GROWING

A paper was read by Mr. F. W. L. Sladen, of the Experimental Farm, Ottawa, on the importance of bees to the fruit grower.

The matter of undertaking cooperative work in the province was advocated by Rev. H. Dickson, and favorably considered by the meeting. It was left to the executive to investigate the possibilities of doing anything.

Opposing the Combines

A despatch from London, England, states that a movement is on foot among those concerned with the sale of Canadian apples in the London market to break down the combine which exists among London dealers under which Canadian apples are sold practically at any price the combine chooses to fix. Arrangements are being made on behalf of the apple shippers of New Brunswick, Ontario and British Columbia to institute an independent sale centre in London, solely for Canadian apples.

CENTRAL NURSERIES, ST. CATHARINES, ONT.

Have a Fine Assortment of

Trees, Vines, Plants, Ornamentals, Etc.

For Spring Planting

For Satisfaction, Plant St. Riges, Himalaya and Ever Bearing Berries. Our prices are right and so are the trees. Send for priced catalogue if you have none, also your want list for special prices on Apple Trees. We can please you. Try Seed Potatoes, Lincoln, New.

Look over our Price List. No Agents. Wanted, a Nurseryman

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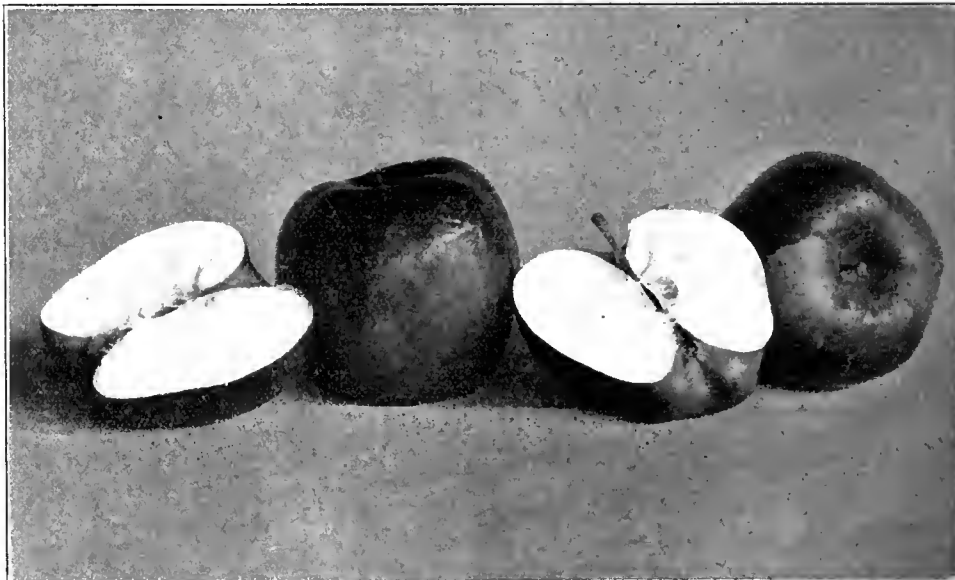
Apple Trees

Should be placed NOW

We expect to see an Apple-Tree-Planting Spring. The Apple Growers generally, last Fall received good prices for first-class apples and the man who does not own an Orchard would like some of that money, but he must plant the right kind of Nursery Stock to get it.

Make up your list of requirements and send it to us **now** while we have a full assortment on hand.

In addition to our enormous stock of Apple Trees we have a general line of other Nursery Stock.



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The Canadian Horticulturist

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MARCH, 1914

No. 3

Reality vs. Fiction in the Fruit Business

T. W. Palmer, Victoria, B.C.

PERHAPS there has been no branch of horticulture so much boomed and advertised as fruit farming. By this I mean tree fruits, particularly apples. The public are gulled and misled in many cases (I don't say all, mind) by flowery written advertisements, highly drawn pictures of the imagination from the pen of a man who has probably never in his life seen an apple nearer its native state than in a grocery shop window. But— he has land to sell!

These advertisements do an enormous harm to the fruit industry at large, as they make the reader expect his fortune made in a few years at the business. The gullible one is persuaded to put his hard-earned money into some of these enterprises only to find his fortune does not come as soon as he was expecting. Thus disappointed and disgusted, he does not forget to let other people hear of it (usually with emanations) and in so doing does a lot of harm to some other man's really meritorious proposition.

Now, if this same man had been told in the first place in an honest and straightforward way, the real standing of the fruit industry, he would not have looked for a fortune lying in wait for him to pick up, but would have been contented with a reasonable thing; that is, a good thing, and some money put aside for a rainy day. In this way a good booster of the fruit industry would have been made, instead of a backbiter.

As an indication of how some of the literature of these land sharps is worded the following will give an idea of how the reader is led to expect an Eldorado, viz.:

"Do you wish peace and prosperity?"

"Your answer is 'Yes.'"

"If you are earning less than \$2,000 a year, would you like to double it?"

"Again your answer will be 'Yes.'"

—THEN—

"Our land is only (some small figure) per acre. Suppose as a working basis you buy only six acres of our land. Figure on one hundred trees to the acre; total, 600 trees. These will bear when from four to five years old. When eight years old you should get at a low estimate five boxes to the tree. This is, then, for six hundred trees at five boxes per tree, three thousand boxes of apples. These you should sell for one dollar and a half per box, making four thousand five hundred dollars for your season's apples. Does this look good to you?"

INFORMATION SUPPRESSED

So far so good, but—, what they don't tell you in their literature is, first, that your apples won't be all No. 1 apples; second, that there is a certain cost attached to the marketing of said apples; third, no allowances are made for off-seasons, bad prices, diseases, and so forth. That these things have to be found out by the grower is all the more

to be censured. When experience teaches these things to the farmer he is naturally disgusted at having his ideals hattered, when, had he been told in the first place he would have been prepared and on the look out to "beat the game."

THE TRUE SITUATION

I shall endeavor to give a rough estimate as to the real cost of marketing six acres of apples in full bearing eight year old trees, figuring on a full crop and no disease. I will tell of the different works that have to be done during the year before the crop, and also the labor involved in marketing the same. But it must be bore in mind that in no two districts is the cost the same, nor is it possible to give an exact estimate in any case. In this illustration it is based on marketing the fruit on Vancouver Island, in vicinity of Victoria.

First, then, is pruning. This will have to be done in the fall, after the sap is withdrawn, or in the spring before it has risen again. This may be done by the owner of the orchard, so that he need not deduct any money from the amount received at the end of the year, as it is part of his living.

After this the first spraying of the year has to be attended to. This is done by a mixture of lime, salt and sulphur. This is sold in handy form now by manufacturers in British Columbia at about six dollars for a thirty gallon barrel. This only needs diluting with water in pro-



The Ontario Fruit which carried off the Premier Honors Last Summer at the Convention of the International Apple Shippers Association held in Cleveland, Ohio. It competed against fruit from Oregon, Washington, Colorado and other states



Preparations for a Clean Crop in a Waterloo County Orchard

—Photo furnished by F. C. Hart, U.S.A

portions of one gallon of spray to nine gallons of water to be ready for use. For an average six acre apple orchard it would require about four barrels of this spray, or twenty-four dollars. Being put on before the leaves are on the trees it takes much less of this preparation than is required when the foliage is on.

A SECOND SPRAYING

The next spraying is with commercial arsenate of lead. This is sold in kegs of different sizes at about eleven cents a pound. For the six acres the quantity required would be about forty pounds of this, which makes about thirteen hundred gallons of spray at a cost of about four dollars and a half. This spraying is to kill all codlin moth, apple worms, and so forth, and is applied directly the bloom falls. If a late hatch of these pests appear of course another spraying has to be done. But as I am figuring on a season fairly clear of pests we will cut out this second spraying of the trees with arsenate.

The third spraying will have to be made to insure the absence of all aphids (green), foliage pests, and so forth; for this Black Leaf Tobacco Spray is admirable. This spraying would cost probably thirty dollars to do as the trees are dense with foliage, and the spray itself is expensive.

Of course, it goes without saying that the orchard has to be properly plowed and cultivated, and kept cultivated. This would cost probably thirty-five dollars for the season.

Thinning the fruit is the next item. No up-to-date orchardist would expect

large fruit if no thinning was done, let alone the damage done to the trees by the weight of fruit breaking off the branches. This would cost perhaps about one hundred dollars, but this is almost impossible to determine, owing to the different things to be taken into consideration, namely the dexterity of the men employed, size of trees, size of crop, and so forth. This is figuring on a full crop.

Now, as the booster's advertisement says, figure your six acres as having one hundred trees per acre, or six hundred trees altogether, eight years old, and five boxes of apples from each tree (very good) and you arrive at three thousand boxes of apples. Of this, say, sixty per cent., or eighteen hundred boxes, are number ones; thirty per cent., or nine hundred boxes, number twos; and the balance, ten per cent., or three hundred boxes, culls. Your account would figure out something like the following:

RECEIPTS

1800 boxes No. 1 apples @ \$1.50..	\$2700
900 boxes No. 2 apples @ \$1.00..	900
300 boxes culls @ 40c	120

Your total.....\$3720

Now, for the part the land shark does not tell about, namely, the expenditure incurred before you receive this amount. (Also bear in mind that I have been figuring on a full crop and top prices, a combination that rarely happens). But to proceed:

COST OF PRODUCTION

	No. 1	No. 2	Culls
Packing, per box	06c	06c	Not packed
Picking, per box	03c	03c	03c
Hauling to market, per box	06c	06c	06c

Paper for packing, per box	04c	02c	No paper
The box itself, per box ..	14c	14c	05c
Wholesale 10% com., per box	15c	10c	04c
Incidentals	02c	02c	02c
Total expense per box.	50c	43c	20c

Thus for the whole crop it works out as follows for expenses:

1800 boxes No. 1 apples at 50c	\$ 900
900 boxes No. 2 apples at 43c	387
300 boxes culls at 20c	60
Thinning \$100, Spraying \$80 and	
cultivating \$35	215
Total	\$1,562

Thus it figures this way:

Gross receipts	\$3,720
Cost of production	1,562
Bal. net	\$2,158

And this is an absolutely full season and the prices figured in are very high. If two thousand dollars was cleared would be good indeed.

Now, in finishing it would be well say that if it is possible, it would by far and away the best policy to the man, ignorant as yet of fruit farming, know the business as it is, and then, as a good honest, splendid head, giving means of making a livelihood, a tremendous fortune, and to prohibit use of the mails to all those ingenious frauds who are daily catching so many poor suckers!

Use of Soap in Spray Mixture

Prof. L. Caesar, O.A.C., Guelph, Ont.

A contributor in the February issue of The Canadian Horticulturist intimates that soap helped to make arsenate of lead spread and adhere better. There is just a little danger of those who are using lime-sulphur with arsenate of lead thinking that they can increase the value of the mixture by adding soap. If you get a chance to put some lime-sulphur in water in a glass vessel and add some dissolved soap to it, do so, and see what will take place. The soap at once changes the mixture and causes it to curdle, breaking down the compound. No one should use soap with lime-sulphur. It is very probable that soap can be used with the so-called soluble-sulphur, which is not a lime-sulphur, but a soda sulphate. It does not cause this to curdle, and far as one can see without a chemical examination, does not alter its character.

At an experimental station in New Hampshire they have found that the method of treatment of an orchard which gives the best results is cultivation in the early part of the season. They plant crimson clover in midsummer, and then that in early the following spring. This method has given good results.—W. Kydd, Simcoe, Ont.

Orchard Aphids and Their Control*

Prof. W. H. Brittain, B.S.A., Provincial Entomologist, Truro, N.S.

IN taking into consideration the most economical and effective method to control any insect, we cannot unfortunately, confine our attention to that pest alone, for many other factors intervene to influence our results. It frequently happens that the time to spray for some insect pest coincides with the time to spray for some fungous disease, so that it is often possible by combining various sprays, to make one operation take the place of two or even of three. This is true of the aphids in that the most important aphid sprays coincide with important sprays for other insect pests and fungus diseases, and it is important to remember at this point in considering how we can best reduce the cost of keeping the orchard free from pests. We must also remember that proper pruning, careful thinning, adequate cultivation, the judicious use of cover crops and fertilizers with thorough and timely spraying are all factors in the production of better fruit, and none must be neglected if our work is to prove profitable. In taking up this subject, I realize that you are already thoroughly acquainted with the appearance and life history of the different orchard aphids, and that you are only interested in hearing of some way to kill them. I will, therefore, only deal very briefly with the former side of the subject, confining my

remarks very largely to control methods.

Three species of aphids are commonly found in orchards: First, Green Apple Aphid; second, Rosy Apple Aphid; third, Woolly Apple Aphid.

The first is by far the most common species in Nova Scotia. All of you are familiar with the small, oval black shiny eggs of this insect, found upon the twigs of the last year's growth during fall and winter. These eggs begin to hatch early in spring, and by the time the leaf buds are showing green most of the aphids have emerged. The time of hatching usually extends over a period of several weeks. The newly hatched aphids are all wingless females that give birth to young without the intervention of the males. A small percentage of the second generation give rise to winged females, which fly to other trees and establish colonies there. The aphids breed continuously throughout the season, some being winged and others, again, wingless. Toward fall true males and females are produced that pair in the ordinary way; the true females subsequently depositing their eggs upon the twigs.

The life-history of the Rosy Aphid is similar to that of the green apple aphid. The eggs are laid on the apple, though not nearly so abundantly as in the case of the previous species. The newly hatched young are dark green in color, but later reddish and brownish forms are produced. During the summer the

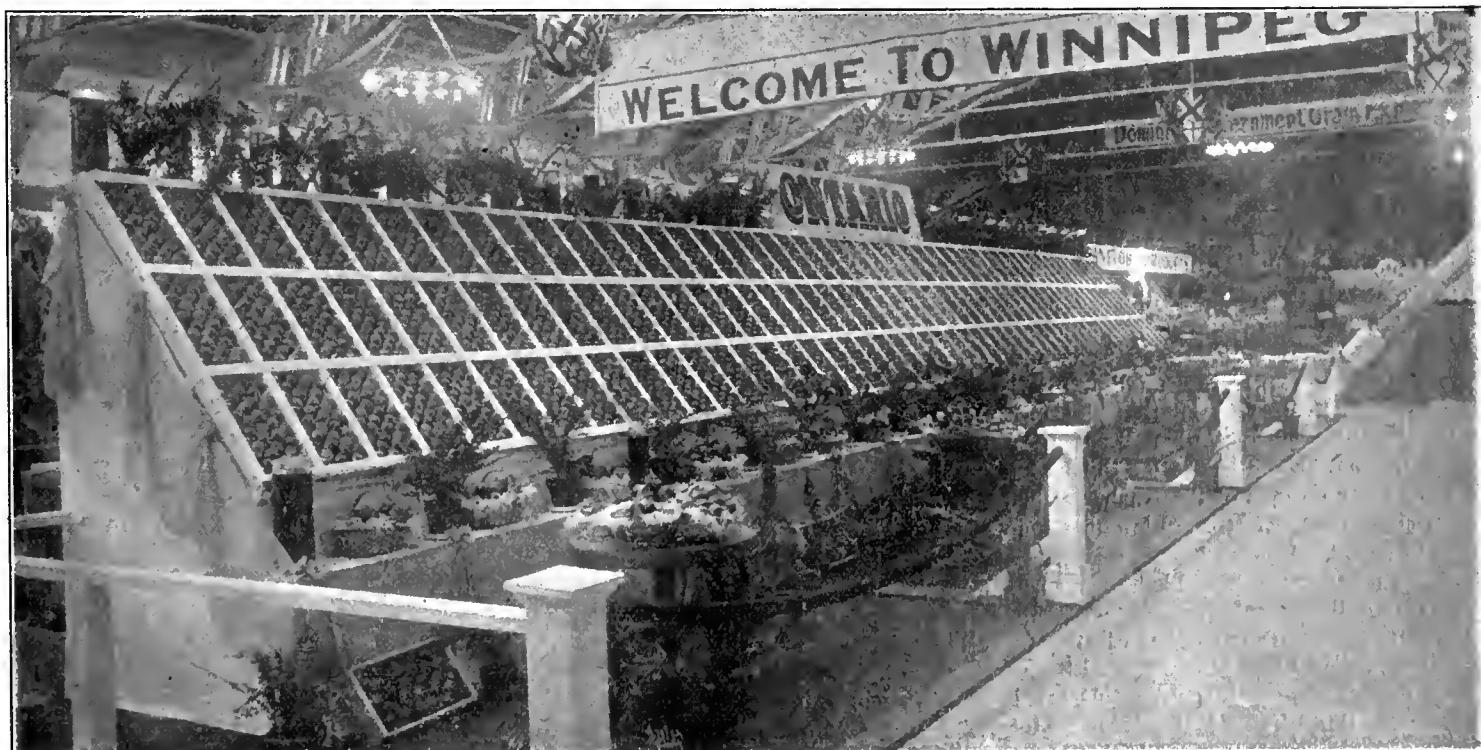
aphids migrate to some unknown food plant, returning in the fall to deposit their eggs.

The Woolly Apple aphid is in some countries the worst pest of all, owing largely to the fact that it may attack both roots and tops. It is very different in its habits from the two preceding species, for whereas they are leaf eaters, this species feeds for the most part upon the tender bark of roots or stems. On the roots they form gall-like swellings, and may not be detected until the tree is seriously injured. The chief source of the lice found upon the trees in spring is those that migrate from the roots and those which have remained concealed upon the trunk of the tree in cracks and crevices of the bark. In spring and early summer they will be found abundant around wounds in the bark or upon stumps of limbs that have been cut back, or in similar locations. Later in the season they are found farther out on the branches, the small limbs, twigs, or leaves being often completely encrusted with the insects. The aphids have an irritating or poisonous effect upon the bark, their work causing open cankers upon the twigs. Small galls also result in some cases.

Probably the most valuable aphidicide that has been developed in recent years is a preparation of Nicotine Sulphate, called Black Leaf 40, manufactured by the Kentucky Tobacco Product Company of Louisville, Ky.

I do not wish to enter into the question of spraying for the apple scab, but if

*Extract from an address delivered at the annual convention last January of the Nova Scotia Fruit Growers' Association.



The Exhibit of Ontario Fruit which carried off the First and Second Prizes in the class for Five Boxes, at the Canada Land and Apple Show, held in Winnipeg last October. This was the only Open Competition for Apples. British Columbia was Third



A Well Loaded Tree

Orchard of T. W. Palmer, Victoria, B.C.

you intend giving the first or dormant spray with lime and sulphur it is advisable under some conditions to defer that spray until the buds are bursting, adding the Black Leaf 40 to this spray. This combination is an excellent control for the aphid, besides the good it may do in controlling scab.

Black Leaf 40 may, moreover, with equally good results be added with the next application, i.e., just before the blossoms open and when the petals begin to show pink at the tips. This is probably the more important spray for aphid and scab as well. Lead arsenate for biting insects may likewise be added without impairing the value of the wash, as far as we have determined, for aphid or scab. If necessary the Black Leaf may again be added to the codling moth spray, applied just after the blossoms fall. In these sprays, Black Leaf 40 is used in the strength of one-third of a pint to forty gallons of the wash. When used alone a pound of good laundry soap should be added as well.

Soap must never be added to a spray containing lime-sulphur.

Another spray that has been in use for many years and has been used with success for all kinds of sucking insects is Kerosene Emulsion. It is made as follows: Soap, one-half pound; kerosene, two gallons; water, one gallon.

Dissolve the soap in hot water, add oil

and churn violently until a creamy emulsion is produced. This gives a stock solution that may be kept for some time. For use against aphids, dilute every three gallons of stock solution with ten gallons of water.

The disadvantages of kerosene emulsion are:

First, it cannot be used in combination with other insecticides or with fungicides; second, if a good emulsion is not secured the spray will be sure to burn the foliage. The oil will collect on the top of the mixture and some of the trees will receive a pure oil spray. I have seen so much damage done in this way that I am reluctant to urge the general use of kerosene emulsion.

There is another spray that is very popular with some orchardists. For use one pound is dissolved in five of water. It may be used with Black Leaf 40, but must not be added to lime-sulphur. There are several brands on the market, differing in cost and efficiency.

Quassia chips are often added to whale oil soap and improves it as an aphidicide. The following is the formula: Soap, three pounds; quassia chips, three pounds; water, forty gallons.

Soap sprays are usually fairly satisfactory and are easily prepared.

The soap or emulsion sprays can be used at the same time as has been recommended for Black Leaf 40. All wooly aphid is harder to kill owing to

its protective covering of wax, and accordingly the sprays must all be used somewhat stronger. It is usually most easily destroyed by a spray applied in the fall when the aphids are out on the terminal shoots.

Hardy Apples and Plums

August Dupuis, Director of Fruit Stations, Village de Aulnaies, Que.

The varieties of apples and plums here mentioned have been cultivated in the north-west part of the province of Quebec for twenty-five to fifty years with success. The severest winters have not injured them. I could add to this list several varieties which are doing well, but they have not been tested long enough by the orchardists and at the Experimental Station to warrant me in recommending them as yet for general plantation.

Nurserymen having agents to sell stock in Quebec province, east of Montreal, ought to offer to their customers only the varieties that have proved hardy and productive after several years of culture. The nurserymen having at heart the success of the fruit industry ought not to sell Baldwin, R. I. Greening, King, Newton, and Pippin trees in this northern part of Canada. All attempts to cultivate them have failed. Their wood does not mature, our season of growth being too short.

HARDY PLUMS FOR QUEBEC*									
Vigor.	Hardiness.	Fumid-ity.	Season.	Use.	Size.	Qual-ity.	Cook-ing.	Ship-ping.	Dessert.
Bradshaw	75	75	Sept.	d.	vl	g	75	50	50
Coe's Golden D. ..	75	90	Sept.	d.e.	ml	g	75	90	15
Gueil	80	75	End Sept.	d.	l	g	75	75	75
Grand Duke	75	75	Oct.	d.	vl	vg	90	75	90
Hudson River Quackenbosc ..	90	90	Oct.	d.e.	vl	g	90	90	90
Imperial Gage	80	75	Sept.	d.	m	vg	90	50	90 Extra for canning.
Lombard	90	90	S. & Oct.	d.e.	ml	g	90	90	75 v. g. for canning.
Mirabelle (native) ..	75	90	Aug.	d.e.	sm	vg	90	90	90 v. g. for preserves.
Moor's Arctic	75	90	Sept.	d.e.	m	f	90	90	50
Pond's Seedling ..	75	75	Oct.	d.e.	vl	f	90	90	50 Varieties im-
Agen	75	55	Oct.	d.	m	g	75	90	90 ported from France 1830
Reine Olande Montmorency	90	90	Sept.	d.	ml	vg	90	90	90 and the most generally
Damas bleu	75	90	Sept.	d.	s	vg	90	90	90 cultivated in
Shipper's Pride ..	75	75	Sept.	d.e.	vl	f	75	90	50 North-East-
Green Gage	75	75	Sept.	d.	m	vg	90	75	90 ern Quebec
Washington	75	50	Sept.	d.	vl	g	90	75	90 on own roots.

HARDY APPLES FOR QUEBEC*									
Tree.				Fruit.					
Vigor.	Hardy.	Prolific.	Season.	Use.	Size.	Qual-ity.	Cook.	Ship.	Dessert.
Astrachan	75	75	Sept.	d.e.	m	g	50	50	75
Y. Transparent ..	90	90	Aug.	d.e.	l	g	90	25	75
Peach of Montreal ..	90	90	Sept.	d.	m	f	75	25	50
Duchess	75	90	Sept. & Oct.	d.e.	l	f	75	90	50
E. Strawberry ..	50	60	Sept.	d.	m	f	75	75	50
Alexander	75	90	Oct.	e.	vl	f	50	90	50
Longfield	75	90	Nov.	c.	m	f	50	90	50
St. Lawrence ..	50	75	Oct.	d.	l	vg	50	90	90
Wolfe River	75	75	Nov.-Dec.	d.	vl	g	75	90	75
Wealthy	90	90	Dec.-Feb.	d.e.	l	g	75	90	75
Am. Gold. Russet ..	75	75	Nov.-May	d.	m	g	50	90	75
Bethel	75	75	Nov.-Feb.	d.	ml	g	75	90	90
Fameuse (Snow) ..	90	90	Oct.-March	d.	m	vg	75	75	90
McIntosh Red ..	90	90	Oct.-Feb.	d.	ml	vg	75	90	90
Rox. Russet	75	90	Oct.-May	d.	m	g	25	90	75
Scott's Winter ..	75	75	Oct.-May	d.	m	g	25	90	75
Winter Arabka ..	50	75	Nov.-Feb.	e.	l	f	75	90	50
Ben Davis	75	60	Nov.-May	e.	l	f	50	90	40

*In the foregoing tables, in the column headed "use" the letter "d." stands for dessert and the letter "e." for culinary. In the column for size "m" denotes a medium size, "l" a large size and "vl" a very large size. Under the heading quality "g" stands for good and "f" for fair.

Efficient Spraying Apparatus Required*

J. M. Robinson, B.S.A., Assistant for Horticulture, Kentville, N. S.

FRUIT growers are waking up to the fact that we need more efficient apparatus if we are to do our best work in spraying. Power sprayers are in use in a great many Nova Scotia orchards, and it is a great pity that some of these are not of the best type. A power sprayer should be able to force not less than one hundred and fifty gallons of spray through two lines of hose, with moderately coarse nozzles, in from twenty-five to thirty minutes in order that thorough and the most economical work may be done. One or two points outside of the sprayer might be discussed briefly with profit.

BAMBOOS

Any one visiting orchards in the Annapolis Valley is at once impressed with the enormous per cent. of scabbed fruit on the tops of our large and even moderate-sized trees. The reason for this is obvious when we look closely at the spraying apparatus used in the general orchard. Very few towers are used on outfits, and dependence for reaching the tops of the trees is placed entirely in the rod used. These rods are with few exceptions too short for the purpose. Long rods are not purchased by the wholesalers as they claim there is no sale for them.

No one can reach the tops of trees twenty-five feet in height with a pole ten feet long. This fact was brought strongly to my notice while thinning in the orchard of E. I. Loomer on July 22nd. Mr. Loomer, who is a thorough sprayer and gets results much above the average, was spraying. After the tree which I was thinning had been sprayed, I took the trouble of investigating the thoroughness of the work done. The lower part of the tree was drenched, but on examining the upper portion I found the leaves absolutely dry and without a sign of any spray. The rods used were ten feet long, while the tree was some twenty-three feet high, and though the spray seemed to be reaching its destination, the top of the tree, it failed to do so.

At the time of thinning even a careful observer from the ground would fail to detect scabbed fruit, but a high per cent. of spotted fruit, mostly from the top of the tree, was harvested. This state of things is not the exception, but the rule. One way of remedying this evil is to purchase longer bamboos or to get a tower arrangement so that we are sure that we reach the top of the trees from every side.

NOZZLES

In order to do thorough work and drive spray through dense foliage, it

seems necessary to have a spray of some coarseness. If too coarse, however, it does not spread, is wasteful, and there is great danger of skipping. It is therefore, advisable to use a whirlpool type of nozzle, with moderately coarse discs.

TANK FILLING

The cost of spraying depends to quite an extent on the time required to fill the tank. The first thing required for quick filling is an abundant water supply, and the second an outlet pipe or hose so that the water may be had quickly.

Mr. S. B. Chute, of Berwick, has an ideal plant, with four inch outlet for re-filling and a two hundred gallon spray tank that can be easily filled in three minutes. This means that the sprayer is working practically all the time, and this means reduced cost in spraying. Often where water in any quantity is obtainable the outfit is kept waiting for fifteen to twenty-five minutes to refill on account of too small an outlet. The cost of installing a lead sufficient to do the work in one-fifth of the time is not great and the money lost by not doing so is at times hard to estimate.

An old-fashioned dash churn is cheap and very effective for creaming arsenate of lead.

COST OF SPRAYING

The cost of spraying an acre of orchard will depend on the efficiency of equipment on the number of trees per acre and on the size of the trees. Roughly the cost of spraying an acre of forty medium-sized trees, taking eight gallons

per tree for each application, would be as follows:

The cost will embrace the cost of three hundred and twenty gallons of lime-sulphur testing 1.0085 specific gravity, using five pounds of Sherwin Williams lead to one hundred gallons of spray.

The cost of application will allow forty cents an hour for sprayer and gasoline, operating nozzles. The following figures would result:

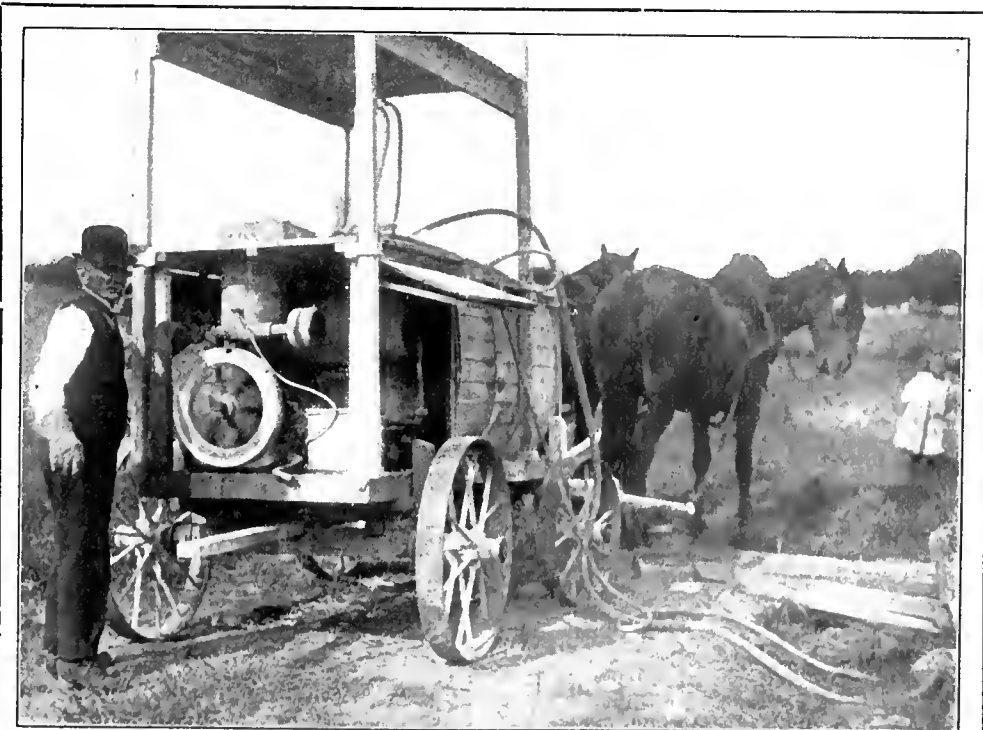
Lime-Sulphur 9.7 gals. at 17½c per gal.	\$1.70
Arsenate of lead, 16 lbs. at 10c.	1.60
Power outfit, 3 hrs., at \$1 per hr.	3.00

Total \$6.30

Each application per acre thus costs the grower either under or over this amount, according to whether his trees take under or over eight gallons per tree, according to whether he has more or less than forty trees to an acre, and according to whether his equipment will put on more or less than approximately one hundred gallons an hour or one thousand gallons a day.

This is, of course, a rough estimate. It is given only for the information of those having limited or no experience in spraying.

White grubs do a great deal of damage to strawberries. They are difficult to handle when they once get into the soil. It is wise to plant in soil that has not been in sod very long. The grub requires two years in the soil, and the second year it does the damage.—W. J. Kerr, Ottawa, Ont.



Filling the Tank with the Tank Filler

This is done by using the pressure from the spray hose. Orchard of Harris and Pearce, New Serum, Ont.

*Extract from an address delivered at the last annual convention of the Nova Scotia Fruit Growers' Association.

Experimental Work with Shrubs and Flowers*

F. E. Buck, Experimental Farm, Ottawa

At the very beginning of the experimental farms system in Canada, the work of testing, recommending and in some cases distributing hardy and desirable ornamental trees, shrubs, and flowers was undertaken on a fairly extensive scale. The work was under the direct supervision of the late director, Dr. Saunders, and the present Dominion Horticulturist, Mr. W. T. Macoun, who was at that time curator of the Botanic Garden or Arboretum. In a young country like Canada, work of this character undertaken by the Federal Government on such a scale had an outstanding value. In the first place it allowed reliable information to be issued in the form of semi-popular bulletins, such as those of "Hardy Trees and Shrubs" and "Herbaceous Perennials Tested at Ottawa," very large editions of both these bulletins being now nearly exhausted; and in the second place the judicious distribution of such plants to the branch farms, public and other institutions, where they attracted the attention of the public, has meant that for some years past, and at the present more than ever before, the possibility of beautifying the individual home and making it a beauty spot has appealed to a large number of people who otherwise to-day might have homes as unattractive as those of many districts of the old world or the desolate homes of new settlers in our own land.

Countless shrubs have been tested and discarded. Others have proved of great value and the good results rewarding the efforts put into this line of work make it stand out surely as of large importance in encouraging the strivings after those things which develop the moral and ethical phases of our life.

This work is still going forward. Just now, to mention but one of its phases, we have under observation a number of new shrubs and varieties of well-known shrubs which were introduced a few years ago from China and other countries by E. H. Wilson, of the United States Department of Agriculture, as well as other shrubs both donated and purchased. We are also putting shrubs to the test with regard to their suitability for certain purposes around the home. This is a phase of work rather new with us.

HEDGE PLANTS

The test of plants for hedge purposes is being expanded and kept up-to-date. Nowhere in the world, as far as I am aware, is there such a complete and thorough test of plants suitable for hedge purposes as that which may be seen under way at Ottawa. About 100 different varieties of trees and shrubs are

used. Many of the hedges are over twenty years old, while others are only one or two. Most are in fine condition, and many are very handsome and attractive. Visitors from all parts of the world compliment the farm on this collection, and inquiries are very numer-



A Country Driveway, Humber Valley Park, Toronto

ous about plants for this purpose. A bulletin on the experiments will be published before long.

The following trees make almost perfect hedges:

All of the hardy birches, namely, *lutea*, *populifolia*, *nigra*, and *lenta*.

The larches, both the American and European.

And several other trees; while some trees that might be expected to do better when grown for hedge purposes are not successful; of these the elm, the Manitoba maple, and the Russian mulberry are examples.

It is always a source of disappointment to attempt growing any plant with the dual purpose in mind of a floral effect and a good hedge, because in pruning a plant to keep it to a hedge form the flower buds have to be sacrificed, consequently several of the most handsome shrubs make poor hedge plants. However, if a hedge with a distinctive character is required, any one of the following might be used:

Purple-leaved Barberry, Golden Nine-bark, Red-leaved Rose, Cut-leaved Alder, Red-twigged Dogwood, American Beech, and the following evergreens: Douglas' Golden Arbor-Vitae, Silver-tipped Arbor-Vitae, Irish Juniper, and Swiss Stone Pine.

Ordinarily we score a plant as perfect for hedge purposes when it measures up to the following requirements: It must grow vigorously, but not too rapidly, otherwise it will require too much pruning. It must have an attractive appearance throughout most of the year and must regain that appearance quickly after pruning. It must permit being pruned to a symmetrical form and a form which will not hold the snow on the top in the winter. It must fill out well at the base when planted in single rows at eighteen inches apart in the row. It must not winter-kill in places, and must not suffer from attacks of insects or fungous diseases. These are the main points of a good hedge. At Ottawa we have many which meet these requirements.

WORK WITH PERENNIAL FLOWERS

A few words only on perennial flowers. Mr. Macoun's bulletin on "Herbaceous Perennials," published in 1898, shows at a glance the immense number of these important plants. This group has been eulogized of late as being responsible for most of the recent good work in Home Beautification.

Our most recent work with perennials has been to test them for their effect under certain conditions. All of the best of these flowers previously tested for other information, are now grown in a border twelve feet wide and four hundred and fifty feet long, prepared especially for the purpose in 1911. In this border the five or six great season groups of perennials are well represented. Such being the bulbs as: tulips, narcissi, and so forth, for the first effect in spring, then the irises, then the paeonies, after which come the great bulk of bloom which is followed by the phloxes for late summer effect, and the asters for autumn effects.

It should be mentioned here perhaps that there are certain times during the summer when the amount of bloom in a perennial border is very small. One of these periods is that which occurs just after the bulk of the early summer plants have bloomed. Since this is a time of the year when a large number of people are expecting the flowers to look at their best, we are just now working to find suitable flowers to fill in these gaps in the floral year.

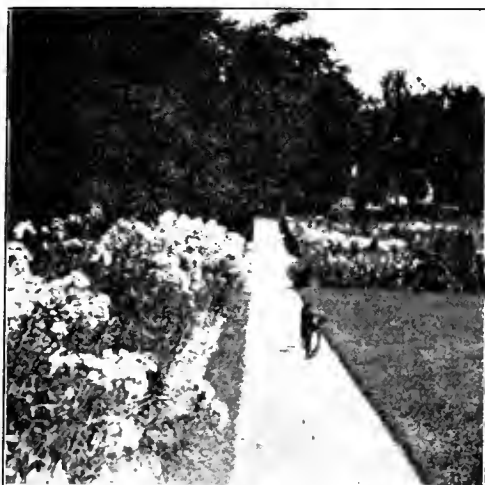
Dahlias require good rich soil, good uniform moisture conditions, and plenty of sunlight, to do well. If the soil has not been sufficiently enriched, or the bed may be more shaded than it should be, or the ground become too dry, the bloom will be disappointing. The Dahlia requires moderately cool soil conditions to do best, and both the application of water and humus to the soil brings these conditions about.—Prof. W. S. Blair, Kentville, N.S.

*Extract from an address delivered before the Ontario Horticultural Association.

The Beeches—A Garden Beautiful

A. J. Elliot, Aylmer, Ont.

"THE Beeches" is the fitting title of the lovely home, on Grand Avenue, London, Ont., of Mr. R. W. Puddicombe, manager of the London Loan Society. A fine home it is.



Mr. Puddicombe's Garden, Looking North Toward the House

This was revealed during a visit when the grounds and garden were at their best. Embowered in grand old beeches, evergreens, and deciduous trees and shrubs, and draped in its summer suit of close-fitting Virginia Creeper and Ampelopsis Veitchii, the house reminded one of the southern colonial home because of its wide and hospitable, pillared verandah, garnished everywhere with boxes, pots and other receptacles for flowers. It might easily be passed by a person on the road without ever imagining that so large a home was so near.

As you enter the gate from the avenue the driveway describes a circle through the ancient forest, and returns to the gateway. Passing up a rather sharp elevation, and arriving at the top and passing the front elevation of the house on the left, you find the primeval and modern hand in hand in great beauty. The only connecting link between the two is a single rank of Scottish firs, planted by a former resident, which seem to stand on tiptoe to make themselves as tall and grand as the lordly beeches they are guarding.

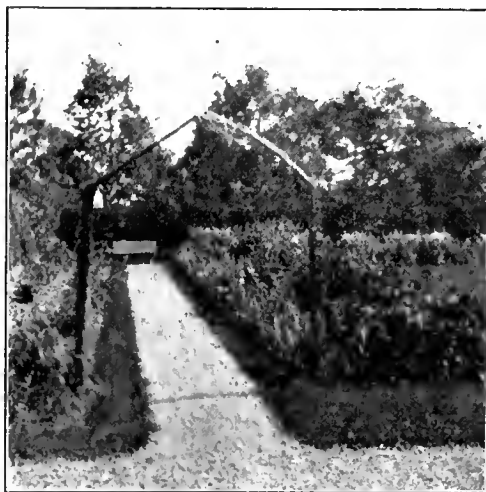
At their feet stretches a large tennis court, level as a billiard table, closely shaven and well kept, surrounded by lawn, till cut off from the garden by a fine row of syringas, backed by a border of perennial plants. The driveway is left here, and walking across the small plateau, on which the house stands, the beauty of the place bursts upon you.

THE ROSE GARDEN

The ground dips from your feet as rapidly as it rose at the entrance. On

this decline is situated the rose garden. At the bottom of this descent the lawn proper commences. It is embellished in the centre with a bed of magnificent paeonies. The lawn still rises till the full height of the ascent is reached on the top of which is planted a grand row of pampas grass. Then some eight feet more, and a row of spruce ends the scene. The general view is lovely.

Descending to the path at the bottom of the incline, and turning, the full beauty of the roses struck me forcibly. It was a glorious day in June when I first was there, and an ideal day for roses. There they stood, some five hundred bushes, all of strong and vigorous growth, fairly bending under the load of blossoms they bore, from the purest white through all the shades of pink, cream, and scarlet, to the darkest shades. It was a panorama of beauty. I could not see a bug, worm, or aphid in the garden. Questioning Mr. Puddicombe



The Middle of the Garden, Looking South

as to their absence, he told me that he had used tobacco water and hebebores, but his panacea for rose enemies was nothing more than the garden hose. The rich clay soil is where the rose luxuriates, and the only manure given is in the fall when strawy manure is put on deep for their protection and raked off in the spring, the fine humus left being dug in.

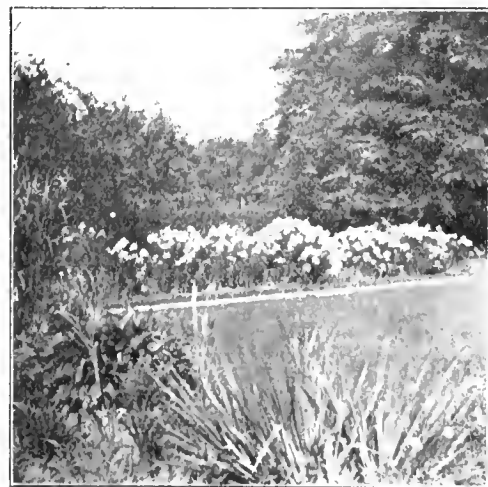
A good lesson might be learned by rose growers as to pruning. The severe winter two years ago froze about all the wood grown the previous year. Yet the following season the roses never blossomed finer nor were more prolific. Mr. Puddicombe's favorites are La France, Marvel de Lyons, Baroness Rothschild, Gen. Jacqueminot, Polonnaise, and Gen. Grant, all of which are well represented in his garden, besides a great many others.

Now, as the rose unfortunately gets through blossoming soon after the month of June is out, the beds would have rather a deserted look; so in the diamond centre bed, geraniums are planted, and the other beds are filled in with Japanese Pinks, Phlox Drummondii, asters, scabiosa, salvia, heliotrope, and on either side liberal perennial borders run the whole length of the enclosure, rioting in bloom. Here was found sweet rocket, the larkspurs, corn flowers, perennial phloxes, garden heliotrope, Sweet William, columbine, hollyhocks, paeonies, and many other flowers.

This enclosure is in its turn cut off from the vegetable garden by a lattice fence covered with clematis, entrance being gained through arched ways, where the paths command. Entering by the south path a surprise was experienced. Another lawn met the view. It was surrounded on three sides with perennials and on the fourth by rows of currants and gooseberries, while a centre bed was a mass of splendid cannas.

North of this was the vegetable garden proper in which in profusion is grown in rows currants, gooseberries, beans, tomatoes, beets, carrots, peas, sweet peas, and asparagus, and all around this part, under the spruces that mark the line of property, are grown raspberries. Adjoining this section is the greenhouse, in which some fine chrysanthemums were showing good work for late fall blossoms.

I stated at the outset that the front was a mass of trees and shrubs. Mr. Puddicombe has spared neither expense nor trouble to gain his desired effect. He has the Mahonia Aquafolia, the seeds of which he got while on a visit to Heidelberg in Germany; the Retinospora, Barberry, Thunbergia, Juniper, Azaleas, and the Sciadopitys Verticillata, besides



The East End, Looking West



A Shady, Bordered Path

the more commonly known varieties of shrubs. He also grows successfully the Magnolia, which had just got through blooming before my visit. Cuddled up at the foot of this shrubbery is a fine row of Japanese anemones.

There are some three acres to this fine place, and it would be impossible for Mr. Puddicombe, who is a busy man, to attend to it. He has a man who has been with him for years, and between them they have made a success of The Beeches, and it is hard to know which takes the most interest in developments there—the proprietor or the gardener Jacques.

There is one magnificent beech, close to the house, that has a spread of over 70 feet, and during hot Sundays a nephew who frequently visits them holds the Church of England service under the leafy dome.

Planting New Shrubberies

John Gall, Inglewood, Ont.

Whether the proposed new shrubberies are to be on a large scale or otherwise, every effort should be made to prepare the soil well, to put in the most suitable kinds of shrubs, and to arrange them in the most attractive way. Even a very small shrubbery makes the home look more substantial and comfortable. Not only does the cultivator derive great interest from watching the growth of his shrubs, but in association with them he can, all the more effectively, arrange other subjects in his garden.

Very fine shrubs can be grown in quite poor soil if it is well treated. Many cultivators are under the impression that it is useless for them to attempt the growing of shrubs, or to form a shrubbery, because the rooting medium is different in regard to quality. Of course good rich soil helps matters considerably; but there is a large amount that is of poor quality, and those who have to grow shrubs in such, should make it

as suitable as possible before putting in their plants.

In preparing the ground, it is absolutely necessary to have it dug as deeply as possible, adding a good quantity of manure. This being done, it is always wise to mark out the stations, before commencing to plant. The need for a careful spreading out of the roots and

for firm planting must be insisted upon. After the operation is completed, water must be applied freely, so that it may sink deep down to the roots.

A few deciduous kinds of shrubs, judiciously mixed with the evergreen sorts, always add to the general appearance, and give additional interest to those of a non-flowering character.

March Work in Indoor Garden and Greenhouse

Henry Gibson, Staatsburg

With the advent of March the progressive amateur finds plenty to do to keep everything in good shape and prepare for Easter. Decorative foliage plants will be greatly improved in appearance by a good spraying with some such insecticide as Lemon Oil, Fir Tree Oil or Aphine. No matter how careful and attentive you may have been, either scale or mealy bug will have found an abode somewhere around the stem or foliage. A thorough going over with any of the insecticides mentioned when they are used according to directions accompanying them, will account for these pests and leave your plants in fine shape.

After the cleaning each plant should be unpotted or some new soil added as a top dressing. In the latter case, remove the old soil down to the active roots. This should be done very carefully with a piece of wood, so as not to injure the little rootlets. For a compost use good loam that has been enriched with thoroughly decayed barnyard manure and bone-meal. Give the tubs or pots plenty of drainage material in the bottom to allow the water to pass off freely.

As the sun gains more power to raise the temperature, more air should be given, and as the weather becomes brighter some means of preventing the direct rays of the sun from striking the plants will have to be devised. This can be accomplished by placing them in a somewhat shaded corner of the house, and in the greenhouse by whitewashing the glass of the section they occupy.

EASTER FLOWERS

If you are bringing along a few lilies for Easter these should be showing buds now. It takes on an average six weeks for these buds to develop without undue forcing, which leaves nothing to spare, as Easter falls on April 12th this year. Keep them well watered and the atmosphere moist, and you will have fine blooms for the holidays without much trouble. Liquid manure applied weekly until the buds begin to turn from green to white will be beneficial, but as soon as this happens it should be discontinued. Spraying or fumigating should be attended to regularly to prevent aphids from getting a hold on your plants.

Should any plants color so early as to be past their best by the holidays, place

them in a cool room. This treatment will retard their progress considerably.

Where it is intended to have Dutch bulbs in bloom for the holidays these should be attended to about the middle of the month. It takes very little over three weeks to flower tulips, narcissus and hyacinths, after being brought into the house. Avoid giving them a warm place. They do not need it and they will only become drawn up. The cooler you can grow them the sturdier they will be, and consequently they will keep better and longer. A few hot days will forward these subjects far ahead of all your expectations, but such possibilities should be guarded against by ample ventilation, and if in the greenhouse some shade on the glass. Do not forget to lay newspapers on the tulips on hot sunny days when the flowers are opening.

SOW PRIMULA SEED

The middle of March is a good time to sow seeds of primula that are wanted to furnish bloom next fall. Prepare seed boxes or pans with a mixture of loam, leaf mould and sand. Sift some of this mixture very fine for the top and on this sow the seeds. Place in a moist, close place, where a temperature of about sixty degrees at night can be obtained. cover with glass and a sheet of newspaper until all the seeds germinate, which should be in two or three weeks. When sufficiently large to handle prick them off into flats, and keep well up to the light so as to ensure a sturdy growth



The South End of the Garden, Looking West

in a temperature of fifty degrees at night. As they begin to get crowded pot them off into small pots, using a compost of loam with the addition of sufficient leaf mould and sand to make it light and porous. To this should be added a fair sprinkling of pulverized sheep manure. Continue to pot them on as the roots show around the side of the pots.

It is not advisable to sow seeds of the baby Primrose (*Primula Malacoides*) at this time. *P. Malacoides* is a very desirable plant which should have a place in every amateur's collection. It makes a better Easter plant than it does a Christmas plant and to start seeds now would result in many losses by damping off before the plants could be carried through to another Easter. Damping off is about the only thing that can be urged against this primula, and this to a large extent can be overcome by sowing the seeds later. June first is soon enough to start the seeds.

CANNAS

Cannas are very popular bedding plants and they are becoming more so each year as the new and improved varieties are being tried out. Where a large bed is to be planted nothing will give more satisfaction than these plants. They are showy and bloom throughout the summer until frost cuts them down.

To make the best showing the roots should be started early enough to produce good strong stock by bedding out time next June. They should be started as early in March as possible. If there are any varieties you wish to add to your collection now is the time to get them.

Remove the clumps from the place where they have stood all winter, shake off all the old soil, and cut away the dried up stalks and roots. They should then be cut into small pieces, and if stock is plentiful, left with two or three "eyes" to each piece. If, however, you are short of stock they may be cut to one "eye," although by so doing weak plants are often produced.

Have a few boxes ready such as you would use for sowing seeds in but preferably a little deeper. Place an inch of soil in the bottom of these, on which put the divisions of the cannas closely together, cover with light sifted soil and water thoroughly.

Very often some of the clumps are found to have started into growth before being taken from the winter quarters. Where this happens the eyes should be sorted and those with growths on them should be placed in a box by themselves, and all the dormant eyes together. Have but one variety in a box and mark the name plainly on it. When all the pieces are boxed up and watered they should be placed in a warm position where some "bottom heat" is to be obtained.

Cannas will grow and do well in a tem-

perature of from fifty to sixty degrees, after they are once started, but to get the dormant eyes into an active condition bottom heat is indispensable. This is where a great many amateurs fail when attempting to grow cannas with such conditions as generally obtain in the dwelling house.

Arrange matters so as to have the boxes elevated above the radiator, the kitchen range, or even an oil stove, as was suggested for starting warm blooded seeds last month. Don't have the boxes get real hot but maintain a steady

brisk heat and your cannas will respond handsomely. If such an arrangement is impossible indoors, make up a mild hot-bed out doors, and start them in a sandy soil. When they have made a few inches of growth they should be potted into three and a half or four inch pots, and grown along until bedding time in a temperature of fifty to sixty degrees. It should always be borne in mind that cannas are sub-tropical plants and are easily injured by frost, therefore planting out should be delayed until all chance of frost is over.

The Tuberous Bedding Begonia

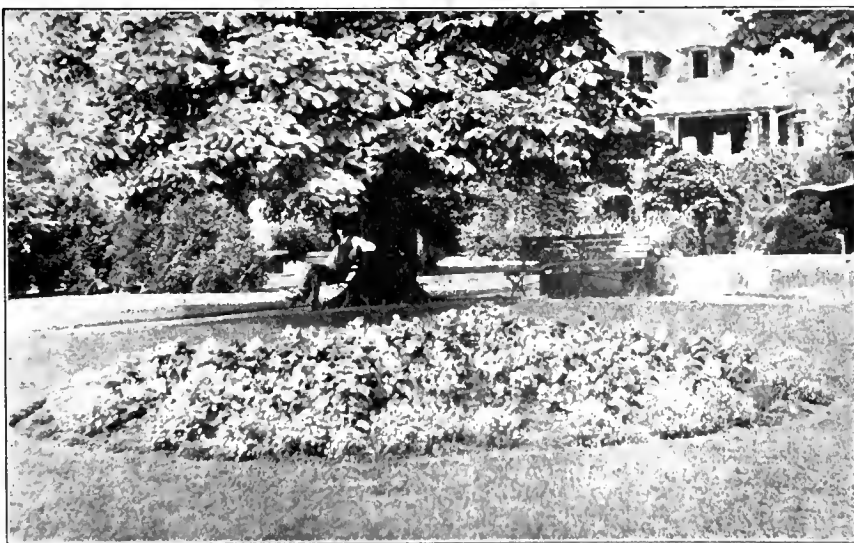
H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

WHERE the culture and requirements of the tuberous bedding begonia are understood the plant is very popular. The three outstanding essentials to successful cultivation are shade, moisture and a soil of light texture. These are as necessary as light and air to human beings. Who would not grow tuberous begonias, were such possible? Among the singles we find flowers five to seven inches in diameter, the colors ranging from pure white through all the shades to intense crimson, while the doubles, many of them resembling roses, are equally as varied in color, and as desirable. The frilled singles of recent introduction attract attention more quickly than the ordinary singles or doubles, and in many localities could be grown successfully. Less known, but equally beautiful, are the varieties *Bertiniana*, a tall vermilion single with pointed petals; *Count Zeppelin*, a dark orange double of dwarf habit; *Lafayette*, likewise of dwarf habit closely resembling *Count Zeppelin*; and *Worthiana*, a vermilion single, the

flowers somewhat resembling those of a fuschia.

For our beautiful tuberous bedding begonias, all of which are annual stemmed, we are indebted to the Andean species of South America, such as *B. Pearcei*, *Veitchii*, and probably *Davisii*, these being the first tuberous species introduced, and being readily crossed have proved worthy progenitors of our magnificent garden types.

It is not advisable to attempt to grow any tuberous variety on a large scale in localities where the temperature hovers around 85 or 90 degrees for weeks at a time, and foolish to attempt to grow any with a higher temperature, or where an abnormally dry atmosphere exists. If such be attempted doubles alone should be planted, as their closely arranged petals are more resistant to heat than the singles, whose petals do not afford protection to each other. An average summer temperature of 75, a humid atmosphere, and a light soil containing humus, retentive of moisture, are ideal conditions for promoting vigorous growth,



A Bed of Mixed Tuberous Begonias

These are not so effective as a bed of one variety.

—Photo by H. J. Moore.



The Ordinary Sweet Alyssum Grows Too Tall and Soon Smothers the Begonias. Grow Dwarf Varieties such as "Minimum," "Snow Carpet," or "Little Gem."

—Photo by H. J. Moore

and splendid flowers. Where the atmosphere is not sufficiently humid shade must be afforded, otherwise scorching will result. A surface mulch of well rotted stable manure or leaf soil is also advantageous.

Those who possess a greenhouse may propagate the plants annually by seeds, or by division of the largest tubers. Sow the seeds in January or early February, if desirous of obtaining plants to bed out in June. It is, however, preferable to sow in March or April, and grow the seedlings in pots during the first year. Disappointment will thus not accrue through failure of many to flower satisfactorily out of doors. By pot culture the first year the small tubers may be readily cared for, and after the growth decays they are not so liable to be lost which often happens when planted outside.

Prepare the seed pans by placing cracks in the bottom and on this a layer of fibrous material. Fill to within one inch of the top with finely sieved soil, composed of sand and leaf soil two parts, and loam one part. The mixture should also contain a small quantity of finely broken crocks and charcoal. Press down gently and upon this layer of soil sift through a very fine screen sufficient soil to fill to within one-half inch of the top. Do not leave the surface flat, but convex, so that water may pass to the sides of the pan, and so prevent damping of the seedlings, this damping being caused by the fungus "Pythium." Immerse the seed pans in water without disturbing the surface soil until the soil is thoroughly saturated. Sow the seed evenly and thinly. Do not cover with soil, place in a temperature of 65 degrees Fahrenheit, cover the pans with a piece of glass,

and shade from sunlight. Do not at any time water the seedlings overhead, but partly immerse the pans. The water will thus rise by capillary attraction and the seedlings remain undisturbed.

After germination, afford light (not direct sunlight) until the plants strengthen, and are large enough to handle, then plant singly one-half inch apart into larger pans. When about to crowd each other, pot off into two-inch pots, and finally, ere flower buds show, shift into four-inch pots. Afford occasional applications of Clay's fertilizer or guano, one-half ounce to a gallon of water. Dampen the floors, benches, and other surfaces to create humidity, and to prevent the attacks of red spider, but avoid spraying the plants during sunlight, otherwise scorching will result. Shade from intense sunlight at all times.

Propagate by division during the first week in April. Select large tubers which possess at least two crowns. A sharp knife is essential to sever the tubers directly between these, each portion will thus bear buds, without which they are useless. Expose the cut surface to air for some time until they cease "bleeding," after which dip them into slacked or powdered lime; this will act as an antiseptic, and also check the attacks of slugs, grubs, and other insects which prey upon them. Place the tubers on finely sieved leaf soil in flats, keep the soil moderately moist, spray them occasionally to encourage growth, and maintain a temperature of at least 60 degrees.

When two or three inches of growth has been made pot off into four-inch or five-inch pots, and when well rooted remove to a cold frame to inure to outdoor conditions. Air well during warm days, but close the frames on cold nights. By the first of June the plants will be sufficiently hardened to allow of the sashes being entirely removed, and after a week's exposure to outdoor temperatures, shaded, of course, from direct sunlight, they may be planted in their permanent position.

Tuberous begonias, when massed, are always effective, especially when the singles and doubles are separated, for in their distinctiveness lies their attraction. Effective even to a greater degree are they when arranged in beds of separate colors, the merits of each variety being thus readily seen. Also, when so arranged, it is possible to select and mark desirable kinds, and to eliminate weaklings. As the begonia reproduces itself tolerably true from seed isolation of the varieties it renders seed selection possible, there being little danger of the intervention of foreign pollen through nat-



Dark Tuberous Begonias and Alyssum Minimum in Queen Victoria Park

—Photo by H. J. Moore.

ural or insect agencies. All who desire to see the tuberous begonia at its best should plant a small bed with dark blood red singles or doubles, about ten inches apart, and between these plant alyssum minimum as a ground work. The snow-like carpet of the latter will bring out the color of the former in bold relief, the combination being magnificent. Begonia Bertini nana, B. Count Zeppelin, and B. Lafayette are likewise admired to a greater extent when treated in this manner than when planted pure.

When the stems commence to decay or when they are cut down by frost, lift the tubers with the remaining foliage, and if possible with a quantity of soil adhering to them. Pack them in shallow boxes, stems upward, place these on a greenhouse bench or in a shed near a window, so that light may have access to them

until the growth entirely decays. Remove all decayed stems to facilitate the drying of the tubers, otherwise they may become diseased. Carefully remove all soil and spread the tubers on a shelf for a day or so, and finally store them in layers, in boxes containing dry sand, two inches of sand or so between each layer of tubers.

Place the boxes away for the winter in a dry frost proof shed, cellar, or greenhouse, the latter being preferable. Aim to maintain an average temperature of 50 degrees, not allowing it to fall for any length of time below 40 degrees or to rise to 60 degrees. These winter temperatures are deleterious, inasmuch as the former will chill, and cause the tubers to decay, while the latter will influence growth to start at an unnatural and undesirable time.

Home Culture of Chrysanthemums

W. Hunt, Ont. Agri. College, Guelph, Ont.

THE chief reason why these popular autumn flowers are not more commonly grown by amateurs is because they are so liable to attacks of insect pests. Some twenty-five or thirty years ago the greater part of these plants grown by commercial florists were field grown. To-day one seldom if ever sees a field-grown plant; they are almost all grown under glass. The small pest called the Tarnish Plant Bug (*Lygus pratensis*) is mainly responsible for this. This is the same pest that is so destructive to the aster bloom, causing so many blooms to be imperfect in form, large gaps often being seen in the petals, spoiling the appearance of the flower. The buds and terminal points of growth of dahlias, too, are often spoiled by the same insect.

These pests are very common on many garden plants besides those named, especially on garden corn. They usually appear in June and continue their attacks all through the hot weather. As they apparently do very little harm to any of the economic plants in the garden, having a particular liking for the decorative plants only, they have not received much attention from entomologists, as there does not appear to be any really effective remedy found yet for them.

Another insect that attacks the chrysanthemum is the Black Aphis, a black and near relative of the Green Aphis, so common on house and garden plants. In very dry seasons the Red Spider (*Tetranychus telarius*) is troublesome, but it is not as injurious as the two first-named if the plants are given proper attention.

There are three methods by which chrysanthemums can be propagated, viz., from cuttings, divisions of the old

roots, and from seed. The best method for an amateur is by dividing up the old plants. This can be done every year or at least every second year, to prevent the plants becoming too large and cumbersome. Old plants that have been kept in a cool window or a light basement or cellar all the winter should be brought up into a cool, sunny window, away from fire heat in March.

When the young growth is about one or two inches in length, divide the plants with a large knife into small divisions or sections, each section having good roots and three or four shoots of top growth. Pot these sections into pots just large enough to hold the plant nicely, not too large, four-inch usually, in good potting soil, with about one part sand to eight or ten parts of potting

soil. As soon as the roots have fairly well filled these, re-pot them into a two or three sized larger pot, a six-inch pot. This can be done usually about the first week in May, using good, rich, loamy potting soil. Place nearly an inch of broken flower pot or similar material for drainage in the bottom of the pot before potting.

One point in potting chrysanthemums, at any time, is that the soil must be packed very firm around the roots. Use a small piece of hardwood for this purpose. Water the plants well once as soon as potted. Shade them from hot sun for a few days. Keep the soil they are growing in well moist at all times. The soil should never become really dry. Spray the growth with water, especially on the under side of the foliage at least every few days, oftener if possible, in bright, sunny weather.

The cuttings are taken from the young growth that starts near to and around the base of the old flowering stem about March or April, or from the top growth of young plants. The stem of the cutting should be from two to four inches in length. The base of the cutting should be just below a node or point of the stem. Remove about half of the lower leaves, leaving three or four of the top leaves on. Leave the terminal point of growth intact.

The best material to root the cuttings in is clean, gritty sand, sand that will make good stone mortar. The sand should be well moistened and packed firmly in a flower pot, seed pan, or a shallow flat box, each having good drainage. Set the cuttings upright in the sand about one and one-half inches apart, inserting rather more than half the length of the main stem in the sand.

(To be continued)



A Corner of the Rose Garden of Mr. E. E. Starr, Whitby Ont.

The Goal of Modern Vegetable Growing

L. A. Waitzinger, B.S.A., Echo Place, Ont.

THE growing of vegetables is recognized as increasing in importance year by year. By the use of vegetables we get the highest yield of human food from the soil, not entirely from the nutriment they contain, but mainly from the quality they possess of rendering more digestible the proteins and carbohydrates of other constituents of our food. The rapid growth of our cities and towns, which are mostly without big gardens, makes truck farming very profitable with good paying crops.

The providing of the vegetable grower with seeds is surrounded by many difficulties—witness the recently issued volume for 1913 of the Canadian Seed Growers' Association. One of the remedies for the improving of these conditions is the selection of seed. Of course the breeding of seeds for the improvement of crops is a very intricate and expensive work, e.g., the quantity of seed produced in relation to the area is often very small, this in part causes the expense. Again, foreign competition, climatic and technical difficulties, not to mention the great labor problem, make the vegetable seed raisers path one of many tribulations.

Seeds to produce improved crops can be raised in different ways. One of these is by mass selection, which means the selecting of the best plants and fruits from a crop and saving them for seed. The seed from these best plants are mixed and sown and the same process goes on from year to year. This method is defective inasmuch as a plant may be superior to its neighbors but only because it had specially good conditions of soil, light, water or protection, not because it has an inherited superiority.

INDIVIDUAL SELECTION

Individual selection is the selecting of single plants, saving the seed therefrom and planting the progeny under conditions which gives each plant the same advantages. The seed from the best plants is then saved and kept separate. The process goes on as long as the investigator likes. In mass selection you cannot guarantee that you have picked out the best, you only think so. In individual selection you are in a position to be sure. You can apply accurate tests to prove it. One is a hit or a miss; the other gets a bull's eye every time.

These methods are generally used in animal breeding. Ordinarily a sheep farmer will let his ram run with a number of ewes. The resulting lambs may be likened to the plants selected in the mass. When the same farmer wishes to produce something which shall do him credit he picks out a specially good ewe and his best ram and breeds from them.

The lamb or lambs may be likened to individual selection in plants in this case. The parentage is known and when the same thing goes on for generations the final results are infinitely superior to those obtained by the first method. When a farmer wishes to test his herd of cows for milk production he treats all exactly alike, gives them the same water, food and shelter. The product from each is noted separately and after deducting the expense of production, he soon finds which cows are profitable. This is individual selection for milk—similar to what should be done in plant life. If the farmer fed some of his cows well, housed them well, and ill-treated others, afterwards testing the results he would or could only guess which was best. He would not be sure. This is similar to mass selection in plants. People should get firmly fixed in their minds that plants are living organisms, as responsive to treatment as animals, as amendable to improvement under certain conditions. The same lots of heredity rule in the vegetable and animal kingdoms.

SIMPLIFYING THE WORK

In order that the important work of breeding plants for improved seed production may be encouraged, the question of simplifying the work should be considered. This can be materially helped by the reduction in the number of varieties of each kind of vegetable. It is far better that the breeder and grower should devote their energies to the individual improvement of the present old varieties rather than be perpetually crossing for new varieties. With what a flourish of trumpets is a new variety introduced; what a plethora of adjectives are used to describe it and in a few years it is as dead as Queen Anne. It is better that improvement should take place along scientific lines.

What is recommended is that certain districts should grow only one or at most two varieties of the kind which can be grown successfully in the district. Then the breeders can proceed with their work knowing that their efforts can be controlled. Varieties of proved merit should be taken in hand and improved and one name given to each variety. This is another point which should be considered by those anxious to simplify matters. We often find that many names are applied to the one variety. Instead of breeders and growers frittering away their time on hundreds of different varieties, the differences only discoverable under a microscope (and often not then) they should come together and breed one good variety to a state of excellence. Two advantages would accrue by a dis-

trict devoting its attention to only one variety. First from the commercial point of view the crops would command higher prices, because by the formation of small associations transit charges would be reduced to a minimum. The district would become identified with the particular kind of vegetable specialized in. Instances of how this system has revolutionized numerous districts could be cited.

It would benefit such a district to grow its own seeds for two or three years, by the methods of individual selection mentioned before. One or more men supported by the association, should be in charge of the breeding of the stock seed, and after the neighborhood generally had a pure line of a certain vegetable, new seed from another pure line could then be introduced and in some cases could be used for crossing purposes. By having the district restricted to one variety a greater chance of obtaining a pure line in a short time is present.

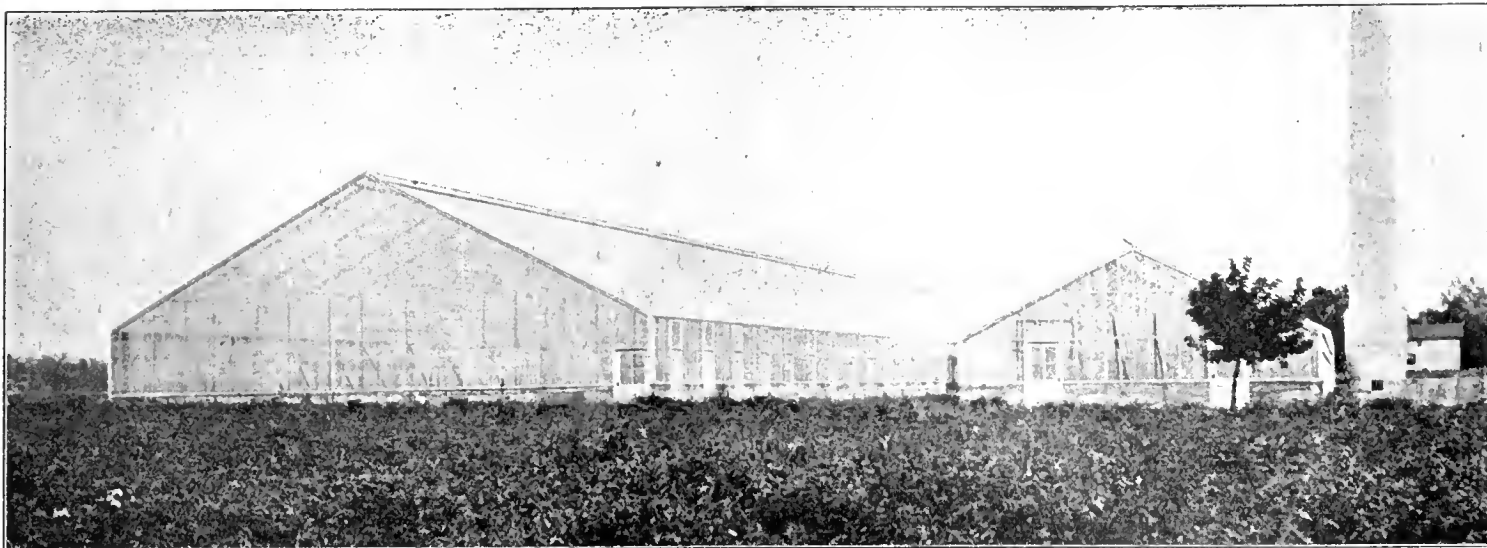
The difficulties of a pure line breeder of any vegetable are very evident in a district where many varieties of one kind are grown. Cross fertilization when it takes place without knowledge is work of no value.

But the difficulties in the way of having specially trained breeders in each district would perhaps be too great to overcome. It would be a good thing to have breeding stations established in a few well-chosen centres supported by the government if private enterprise was unable to cope with the problem. These stations would be in charge of men scientifically equipped in every way, whose duty it would be to raise pure bred stock seed. These stock seeds could be sent to their respective districts where the vegetable growers could establish multiplying plots. From the plots the seed could be supplied for two or three years—not for very much longer as deterioration might set in. Then fresh stock seed could be procured from the station and the district could proceed as described.

The Glass Culture of Tomatoes

R. H. Ellis, Leamington, Ont.

The tomato crop, an illustration of which appears on the front cover of this issue of *The Canadian Horticulturist*, was benched last August, started fruiting in October and finished in January. The plants were trained to a single stem. We used twine and tied them to an overhead wire for support. The plants were set twenty by twenty-four inches. We find that three pounds to the plant is a very good average for this season of the year. The growers who get less than that are more plentiful than those getting that, let alone more. The house shown is one of our sixty-five by two hundred foot houses. The photo was



Vegetable Growers are Rapidly Discarding the Old in Favor of the Modern Styles of Greenhouse Construction

These houses are the Lord & Burnham Construction, Toronto, Ont.

taken about the middle of November. It was a good average crop.

Some people would have you think that the growing of tomatoes under glass was just about like going into a mint and helping yourself to gold coin with no restriction. My opinion is that they will know more about it after they have had a little experience. I know several growers who have been getting some of that experience this past winter. Their gross receipts will not pay for the fuel consumed, let alone any of the other ex-

penses. It has been said by one inexperienced grower that he would be quite safe in saying that it would not cost more than ten cents a plant to produce a crop. Most winters it would cost that for fuel alone. It costs four to five cents a pound after the fruit is ripe, to pick and pack it, and deliver it at the express office, saying nothing of the abundance of work required to bring a crop up to that stage. There is good reason, therefore, for warning the would-be tomato grower under glass not to be misled.

Although the season was not as good as 1912 for high production, this shows an improvement on the 1912 crop. Here again is shown the importance of pedigree. The three best rows were from the most productive row of 1912. I do not expect to make much more improvement but by careful selection each year under the Canadian Seed Growers' Association rules I hope to keep the strain at least as good as it is now. In view of the satisfactory results obtained with the Irish Cobbler, I have commenced to select the Rochester Rose, Wee McGregor and Ashleaf Kidney potatoes on the same plan.

Results Obtained from Potato Seed Selection

W. E. Turner, Duval, Sask.

I COMMENCED during the fall of 1909, when harvesting my Irish cobbler potatoes, to select the best roots for planting the next year by digging carefully and keeping each root separate. I then went over the plot and picked out the most productive roots of uniform quality. These I stored in a large box in the cellar, to be planted in the spring of 1910 as a special seed plot.

I selected again from this special plot in the fall of 1910 in the same manner, but during the summer of 1911 I saw the annual report of the Canadian Seed Growers' Association and I found that the Association had a much better system of selection, so I sent for full particulars and rules and when digging in the fall of 1911, selected twenty-two of the most productive roots and stored each root separate in compartments in boxes.

In the spring of 1912 I selected a piece of land that was uniform throughout, using no manure, and planted whole, eight of the best potatoes of each of these roots in a separate row, numbering each row. Of course I expected to find some improvement, but I had no idea the improvement would be so great. When digging in 1912 I kept each row and root separate and then by counting the pota-

atoes found the most productive rows. The best row had an average of twenty-one potatoes per root, the worst row only thirteen per root. This is where the advantage of planting the product of each root in a separate row is found. One can see which row has the best pedigree. In this special seed plot there were eight roots with twenty-five or more potatoes per root, one root having twenty-nine. I selected again twenty-seven of the best roots from the most productive rows, keeping each root separate as before, and the remainder of this plot was put in a special bin for the improved seed plot of 1913.

The special seed plot of twenty-seven rows was planted as before. Eight of the best potatoes were planted whole per row. These were planted on land that had been cropped five times since it had been broken, so I sprinkled a quart of hen manure around each root just as they were coming through the surface. Although the season was too dry for the best results the most productive row averaged twenty-five potatoes per root, and the worst was eighteen per root.

In this special seed plot there were thirty-five roots with twenty-five or more potatoes per root, one root having forty.

Growing Ginseng in Ontario

Dr. H. F. MacKendrick, Galt, Ont.

A few years ago I commenced growing ginseng. The root is the part that brings the money, and at present the grade of roots grown in Canada are bringing the highest price in the open market, being much finer grained and firmer than those grown farther south.

Plant your seeds in September or October, and they will come up in the following spring. Put them in a well drained piece of garden, sandy loam, or any well drained good soil will do, and you will be surprised at the progress of your crop. By raising your own seeds and planting them, each three year old plant will produce about fifty seeds, a four year old about seventy-five seeds and a five year old plant about one hundred seeds, so that quick reproduction may be attained and sufficient seed for sowing purposes may be acquired. This fact is often brought forward as an argument against the growing of ginseng, but to prove the fallacy we have only to consider that it takes ten years to produce a crop of apples, which in past years have also required constant attention and its consequent expense.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee-keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office) 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

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6. Advertising rates, \$1.40 an Inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1911. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,626	Total	150,293

Average each issue in 1907, 6,627
" " " " 1913, 12,521

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided each transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist." Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts. Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT

EDITORIAL

SELLING FRUIT BY POST

The introduction into Canada, although as yet only on a very restricted scale, of the system of parcels post, adds interest to a postal arrangement now in force in New Zealand. In New Zealand the government has a post and telegraph department. The railways are publicly owned. The government has made arrangements by means of which lists of the different fruit growers' associations participating in the scheme are posted in the various post offices. The lists include the price lists for the various sized packages of fruit offered for sale.

The purchaser on paying four cents to the local post master, is supplied with a stamped coupon. Having decided with which association he will place his order, he writes the address of the fruit growers' association on the stamped side of the coupon; then on the lower portion of the reverse side he fills in his order. He then hands to the postmaster the coupon, together with a postal note for the amount of the purchase price of the fruit plus the necessary carrying charges, as set out in the regulations. Thus, he prepays for the fruit and the postal charges. The postmaster then forwards the order to the fruit growers' association, the four cents covering the charge for forwarding the order.

When the secretary of the association receives the order he forwards the fruit, and then fills in the top portion of the coupon and sends it into the post office from which it was delivered, where it is retained as a receipt for six months. Cases of fruit must be delivered by the vendor at a railway station or at a wharf served by a steamer having contract with the railway department. House to house delivery of the fruit is undertaken at places where the railway department has a cartage contract.

The post office acts as agent for the buyer only and therefore assumes no responsibility with reference to the quantity, quality or condition of the supplies, nor for any delays that may arise in execution. In sending fruit forward shippers are permitted to bulk the individual parcels that go to the same destination.

The New Zealand system has been in operation only a few months. Should it prove successful it ultimately may mean much to Canadian fruit growers.

THE JORDAN STATION

For years The Canadian Horticulturist has contended that the Jordan Harbor Experiment Station should be devoted principally to the advancement of the tender fruit and vegetable interests. Situated, as it is, in the heart of the only tender fruit district in Eastern Canada, it is largely a waste of time, opportunity, and money to conduct experiments at this station with the more hardy varieties of fruit, which might be conducted to even better advantage in other sections of the province.

The addition of a number of experienced fruit growers to the advisory board of the station has already tended to effect an improvement in the management of the station. We understand that it is their desire that the land at the station shall be reserved chiefly for plant breeding and variety experiments. If this is the case, the

provincial Minister of Agriculture may rest assured that if a move in this direction is decided upon it will meet with the hearty approval of all those most interested in the success of the station. Most of the experiments that have been conducted in apple culture might better be carried out at other points in the province. Ontario has an opportunity to make the Experiment Station at Jordan Harbor one of the most noted on the continent.

"BIG BUSINESS"

This is the age of "Big Business." In every line of industry we see mergers and combines being formed. Nor are such combinations unnatural. Centralization means economy; and economy means greater profits.

The fruit growing industry has not been exempt from the centralization idea. From small beginnings we have seen a large number of cooperative associations spring up in the various fruit growing sections of Canada. The tendency is towards still greater centralization. In Nova Scotia, upwards of thirty cooperative societies have combined to buy supplies and sell fruit through a central organization. In the Okanagan Valley, B.C., the various local fruit unions have formed a central selling agency. Within the past year twenty-four Fruit Growers' Associations in Ontario have organized a similar selling organization.

This is as it should be. In the Annapolis Valley previous to the formation of the "United Fruit Companies," the various associations were in competition with one another. Now all fruit is sold on the same basis and the growers' returns are increased. At the same time the consumer has not paid any more than formerly because the large number of agents and dealers who before handled the crop are not now necessary.

The formation of these central agencies has meant that each separate association could do away with its own selling department. As a result, greater economy and uniformity in methods have been possible. Fruit growing needs "Big Business" methods as much as do other of our important industries. The organization of central associations is in harmony with the trend of the times.

Elsewhere in this issue appears a reference to the splendid work that has been accomplished in the Dominion Capital by the officers of the Ottawa Flower Guild, including those two well-known enthusiasts, Messrs. R. B. Whyte and W. T. Macoun. The gratifying results that have attended the work of the Guild afford inspiration for the growing number of enthusiasts who are advancing similar work in other towns and cities throughout Canada. In Ottawa thousands of children have been led to take a deep interest in horticulture through the efforts of the Flower Guild. Similar methods followed in other cities should be attended with equal results. Societies that are thinking of conducting this work this year will be able to obtain much helpful information by writing to the officers of the Ottawa Flower Guild for particulars regarding their methods.

The strenuous opposition that has been raised to the efforts of the members of the Ontario Vegetable Growers' Association to cooperate in the purchasing of supplies has not dampened, apparently, the determination of the officers of the association to

proceed with this line of work. This is only what might be expected. Opposition of this character only tends to convince those who are at the back of such movements that it springs from selfish motives that are inimicable to their interests, and thereby is likely to lead them to put forth renewed efforts.

PUBLISHER'S DESK

Our front cover illustration this month shows the interior of one of the green-houses of Mr. R. H. Ellis, Leamington, Ontario. Mr. Ellis is one of the most successful growers of early tomatoes in Ontario. The splendid crop shown in the illustration is an indication of his ability.

* * *

The April issue of The Canadian Horticulturist will be our Third Annual Spring Planting and Gardening Number. In April the gardening fever seizes most amateurs with its greatest force. This issue will be filled with articles that will give them just the information they are most likely to need at this season of the year. Our gardening numbers in 1912 and 1913 proved most popular. We anticipate that this year's number will please our readers even more. The front illustration will show a beautiful garden, the attractiveness of which is heightened by a well-arranged pergola. This will be the finest front cover of the kind we have ever published on The Canadian Horticulturist. Among the special articles the issue will contain one entitled "Orchids, the Goddesses of the Flower Family," by Mr. F. E. Buck, of the Central Experimental Farm, Ottawa. This article will be a description of the successful methods followed by ex-Mayor J. A. Ellis, M.L.A., of Ottawa, an amateur grower of orchids who has met with great success. An article on orchids written by Mr. Ellis, and published in The Canadian Horticulturist some time ago, attracted so much attention we have been led to obtain this special article as the result of a special request that we should do so.

"A Perennial Border at Small Cost," illustrated with a diagram, will be the title of a practical article by a young woman contributor in Quebec, whose record of practical experience should prove most helpful. Mr. Wm. Hunt, of Guelph, will write on "Planting Notes for the Spring-time," and Mr. J. McPherson Ross, of Toronto, on "Plans for This Year's Garden." One of the most successful rose growers in Canada is Mr. Jas. M. Bryson, gardener for Mr. Moore, the well-known rose enthusiast of Toronto. A feature of our April issue will be an article by Mr. Bryson on rose growing. The foregoing are only some of the interesting subjects that will be discussed in the garden section of our April issue.

* * *

In the vegetable department of the April issue of The Canadian Horticulturist two articles of special interest that will appear will be entitled "Progressive Vegetable Culture," by S. C. Johnson, B.S.A., who will give the results of a visit to the establishments of some of the large vegetable growers in the United States. A second article will be entitled "Irrigation and Its Practical Results." This will be a report of one of the best addresses delivered at the last annual convention of the Ontario

Vegetable Growers' Association by Mr. J. J. Davis of London, Ontario. The fruit department of the paper will as usual be strong. It will include an article by a prominent Nova Scotia grower, pointing out the necessity for Canadian fruit growers so perfecting their methods now that they will be ready for the greatly increased production of fruit that it is anticipated will take place during the next few years. Don't miss our April issue.

* * *

Last year the April issue of The Canadian Horticulturist made a record that remained unbroken throughout the year. This indicates that advertisers who desire to ensure their advertisements receiving the best positions and attention in our April issue should endeavor to have their copy reach us early. As the April issue will be a money-getter for the advertisers who take advantage of the opportunities it offers our advertisers are advised to have their copy reach us by the 10th to the 15th of the month. After that date it will be more difficult for us to give them the service we would like.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

A Progressive Society*

Dr. F. E. Bennett, St. Thomas, Ont.

Back in the fall of 1910, when I was elected president of the St. Thomas Horticultural Society, I found a membership of one hundred and twenty-four, but not much work being done. Nothing had been done along the lines of public flower beds and little along educative lines. Realizing that something must be done if the society was to become a power in St. Thomas, I consented to accept the presidency only on condition that one hundred dollars be granted for the laying out of fifteen flower beds on the wide boulevard which parallels the Michigan Central tracks for over a mile. These flower beds cost us six dollars each, the flowers being bought of a local florist.

From the first the people of the city showed their appreciation of our work, with the result that when we canvassed for new members we secured three hundred and thirty-seven. In the following summer we revived the lawn and garden contests, one hundred and twenty-five members entering. Liberal prizes were offered, but we found that the number of classes was too limited, as, for instance, in the garden competitions, the working men's gardens coming in the same class as the gardens of those who could afford to employ gardeners to tend them.

Monthly flower shows were organized, starting with tulips and spring flowers, then peonies, then roses, and so on through the summer and fall, each class of flowers in its turn. Where did you hold these shows, you ask? We held them in store windows, and to this fact I largely attribute the big growth of the St. Thomas Society. Each succeeding show was an increasing success until with the last it was a problem to accommodate the entries. The shows were

*Extract from an address delivered at the last annual convention of the Ontario Horticultural Association.

always held on Saturdays, which being market day, and a kind of parade day, enabled large crowds of sightseers to see something of what the society was doing. The show windows were the objective of large crowds all day and especially in the evenings.

With the store windows exhibits the people can hardly help seeing the beautiful flowers and becoming first interested and then converted to the aims and objects of the Horticultural Society. We charge no fees for these shows, because the people who can afford to pay and would pay are those who already grow flowers and are already converted. The society furnishes receptacles for the flowers which become the property of the society.

Now there is always a big demand for these prize winning and show flowers, and much money could be made by selling them, but we have adopted in St. Thomas what we believe to be the better way, in that it has helped immensely in popularising the society and its work. We ask the pastors of all the churches to provide us with the names of any sick and aged people of whom they know, and early on Sunday morning autos are called into service and the bouquets distributed, each bearing a neat little card, tendering the compliments of the society to the recipient. Try this in your own town if you wish to make friends for your society.

Then, too, in this distribution of one of nature's finest gifts to man, "the stranger within our gates" is not forgotten, the poor foreigner in the hospital receiving a bouquet along with the rest. Nor are the old folks in the Home forgotten; some of the best are always saved for them, and I wish some of you could be with me and see the faces of the poor old ladies, "somebody's mothers" brighten as they gaze on and touch with almost reverent care, the flowers that remind them of days when fickle fortune smiled on them from some almost forgotten flower bed.

Another membership campaign is on, and from a membership of three hundred and thirty seven we have jumped to seven hundred and eight, with every prospect before the campaign of 1914 closes of over twelve hundred. Here are some of the many reasons given for joining the society: "We like the flower shows"; "We like the public flower beds"; "Everybody seems to be cleaning up"; "We value the premium you give"; etc., etc.

It has been customary to give each member a rose or shrub and a dozen bulbs, and The Canadian Horticulturist. This year sixteen optional premiums have been arranged. Last fall we gave away sixteen thousand bulbs and have imported ninety thousand more for our members at cost price; some of the options are one hundred and fifty bulbs, another is four of the best hybrid roses.

Vancouver

The members of the horticultural society assembled in the small Pender Hall on the evening of February 4th, to listen to Mr. D. D. England, special lecturer for the provincial government, deliver an address on "Lawns and how to make them." Mr. England spoke very interestingly on the subject of seeding, the proper time, the right kinds of seed to use under certain conditions, and also on the subject of watering lawns to the best advantage. Many questions were asked.

Cooperation in Marketing Apples *

S. C. Parker, Berwick, N.S., Past President N.S.F.G.A.

THE apple growing area in Nova Scotia is limited and always will be. For practical, commercial purposes the Annapolis Valley is the orchard area of Nova Scotia. This valley is about one hundred miles long and from two to ten miles in width, protected on the north and south by ranges of hills, called by courtesy mountains. This is where we grew two million barrels in 1911, and expect to grow five million barrels before 1920.

The beginning of apple growing in Nova Scotia was many years ago. The early Acadians had their apple trees, and small orchards were planted up and down the Valley from Annapolis to Windsor. There are trees now bearing apples that are known to be more than two hundred years old. Producing apples on a commercial basis, however, is of much more recent origin. About thirty years ago the increase was such that the growers began to look for markets away from home. The English market seemed the best opening and shipments were made from time to time to those markets. There were few local buyers, the business was too small to draw in outside capital and these early shipments were usually consigned. The farmer was not only grower but packer and consignor. Out of this method grew a system of cooperation. A number of growers would often be represented in the same carload and hundreds in the same cargo. In the meantime the English commission houses were catering to the growing trade and placing representatives in the orchard sections to solicit consignments. More than a score of English houses had their representatives in the Annapolis Valley. These had their agents and sub-agents at every station in the fruit district, and these subs had subs. Indeed, it recalled the old story of the parasites:

"The greater fleas had little fleas
Upon their backs to bite 'em;
The lesser fleas had smaller fleas,
And so ad infinitum."

Thus, there was an army of middlemen preying on the producer. These people would take charge of a consignment, no matter how small, combine them in carload lots, and forward to the English houses. The return commission, rebates and steals often gave them fifty cents a barrel on the farmers' crop; and when this crop ran into the hundreds of thousands of barrels it was a good business. This was a species of cooperation but under this system the middleman was getting rich and the producer often growing poorer.

METHOD OF ORGANIZATION

The question of cooperation had been talked about many times. Several attempts were made and failed, possibly because the proposed scheme was too ambitious. About seven years ago the first successful scheme was launched on a very modest scale. The Berwick Fruit Company, Limited, was organized, made up of six members with a nominal capital of \$10,000. In the first year this company handled about seven thousand barrels. It was a success from its inception. The second year the membership increased and eighteen thousand barrels were handled. The third year, although

the capital was increased, the stock was quickly taken up and it was found necessary to refuse any more members admission. That year the company packed and shipped thirty thousand barrels.

At the end of seven years they have a packing house one hundred and seventy-five by sixty feet, an evaporator and all facilities for handling seventy-five thousand barrels annually. Encouraged by the signal success of the Berwick Company new organizations sprang up. Three others were organized at Berwick and some thirty-five or forty operated in the Valley this season.

The organization is extremely simple. A general act was passed by the Provincial Legislature entitled: An Act to Encourage the Organization of Cooperative Fruit-Packing and Shipping Companies. This act provides that any three persons may organize for the purpose of packing, shipping, marketing, warehousing fruit or farm produce, buying and selling flour, feed, fertilizers, farming tools, making barrels or practically anything used on the farm.

The barrels used are often made by the farmer, usually in cooper shops near the farm. Every village has its cooper shop. The Nova Scotia barrel is crude in appearance but it is cheap and strong. I do not think we would consent to change it; it serves as a trade mark in markets where best known.

In the cooperatives there is no individual packing. The farmer picks his apples and delivers them in barrels to the packing house. There they lose their identity and become part of the company output. Each variety is averaged and the farmer is paid the price of his apples, less the packing charges.

After a few years' experience of the local companies it was felt that the time was ripe for the next step in cooperation. There were some twenty local companies at work, each independent of the other and competing with the same goods in the same markets. After a year of experimenting the local companies got together and organized a central company—the United Fruit Companies of Nova Scotia. In this central organization the local company is the unit, taking the same place in the larger organization that the individual does in the smaller. Each local unit must subscribe twenty per cent. of its capital stock to make up the capital of the central; and each local appoints a representative, usually the manager, on the board of directors of the central. All the apples packed by the local companies are marketed by the United Fruit Companies, and in this organization the fruit is also pooled, the local being paid the average price for the season on the output.

A LARGE ENTERPRISE

The most sanguine of the builders of this organization did not realize what a tremendous scheme they were floating. Neither did they expect the great machine would run without friction as it has done, and become in one year a power in the fruit market of the world. In 1912 and 1913, the first year of its operation, the United Fruit Companies handled three hundred and sixty-seven thousand barrels of apples, nearly one-half of the output of Nova Scotia. The price returned was very satisfactory, for instance:

Gravensteins netted, No. 1, \$2.07; No. 2, \$1.77; Duchess netted, No. 1, \$2.09; No. 2, \$1.99; Kings netted, No. 1, \$2.25; No. 3, \$2; Golden Russets netted, No. 1, \$3.05; No. 2, \$2.32.

The central office bought and distributed among the subsidiary companies: Eight hundred thousand pulpheads, seventy-one thousand pounds of grass seed, fifty-four thousand pounds vetches, five thousand eight hundred tons of fertilizer, eight hundred and thirty-five barrels lime sulphur, five hundred kegs nails, fourteen hundred barrels of flour, eight thousand bags feed, fifty-six thousand pounds of arsenate of lead.

It paid for the foregoing, spot cash, one hundred and fifty-three thousand dollars. It is estimated that on fertilizers alone we saved eighteen thousand dollars to the farmers in the companies, while those outside reaped a corresponding benefit, prices falling generally, three dollars a ton.

The United Fruit Companies have in addition to their office at Berwick, offices in London and Halifax. They employed a traveller during the fruit season, and an organizer and instructor during the entire year. Now, just a word in regard to the cost of this efficient organization. The total cost of the central association amounted to fourteen thousand six hundred and sixty-one dollars. In earning and saving for the year, the central made twenty-four thousand seven hundred and sixty-six dollars. Thus the entire expenses of the United Fruit Companies, including salaries, traveling, cable, telephone and telegraph, upkeep of offices in Berwick, Halifax and London, have been paid out of direct earnings and savings, all effected, and could only have been effected, by centralization. In addition, five thousand dollars were placed in reserve on capital account and more than five thousand dollars rebated to the subsidiary companies.

Just one concrete instance of how savings are effected by centralization. The Carters' Union in London have from time immemorial charged four pence per barrel, cartage. Our representative there last year found people who would do the same work for three pence. This one item saved the companies eight thousand dollars.

In conclusion I may say that the few years' experience in cooperation, have practically revolutionized the fruit business in Nova Scotia. Some thirty-five local companies are working this season, most of them in cooperation with the central. The people generally, are watching its progress carefully. The machine seems to be working perfectly, and if no serious errors are made a very few years will see the enormous apple business of the Annapolis Valley controlled by one organization—the United Fruit Companies of Nova Scotia.

Important Regulations

The following additional regulation under The Destructive Insect and Pest Act was passed by Order in Council, December 4th, 1913: Regulation 18—"The importation of all nursery stock, including trees, shrubs, plants, vines, grapes, scions, cuttings or buds, through the mail is prohibited, excepting greenhouse-grown florists' stock, cut flowers, herbaceous perennials, and bedding plants, which will be admitted, provided that a detailed statement of the contents is attached to such parcels." This regulation is to take effect on and after the first day of March, 1914.

*An address delivered before the annual convention of the Ontario Fruit Growers' Association, November, 1913.

FREEMAN'S BONE MEAL

BEST ON EARTH

MORE PHOSPHORIC ACID TO THE DOLLAR'S WORTH THAN IN ANY OTHER FERTILIZER

Send for Booklet on Fertilizers and Fertilizing with Guaranteed Analysis

WATCH FOR THE TRADE MARK.

The W. A. FREEMAN CO., Ltd
223 HUNTER ST. E., HAMILTON.

FLOWER POTS



Large stock of all sizes for the Spring trade.

Send us your order NOW and receive your supply before the Spring rush.

THE FOSTER POTTERY CO., Ltd.
HAMILTON, ONT.

Vegetable Growers are Active

The annual meeting of the directors of the Ontario Vegetable Growers' Association was held in the office of the secretary, J. Lockie Wilson, Parliament Buildings, Toronto, on February 4th. Delegates from the different branches were present, and were enthusiastic over the work being done by the association.

The purchasing agent, Mr. W. J. Kerr, stated that the cooperative buying had been a financial success. He was perfectly satisfied with the work that had been accomplished during the year. The last bulletin issued to the members contains quotations on flower seeds, fertilizing and spraying materials, as well as on vegetable seeds.

It was decided to continue the vegetable field crop competitions in onions, tomatoes and celery.

A vegetable tying machine was on exhibition during the afternoon, and after the delegates had examined the work done by this machine, they passed the following resolution:

"That the Saxmeyer Vegetable Tyer exhibited and operated at our annual meeting is a labor.saver and would be of material assistance to vegetable growers, and as these machines cost \$90 in the United States and the duty is \$26, we would respectfully recommend that the duty be removed from tying machines until such time as they are manufactured in this country."

There was a pleasant break in the routine of business when the delegates presented Mr. Thos. Delworth, of Weston, with a gold watch as a token of their appreciation of the practical interest he had taken in the work of the association. The secretary, J.

Douglas Gardens

OAKVILLE, ONT.

Early orders for the following Plants are specially recommended for the coming Spring season, viz.:

Antirrhinum (Snapdragon), including pink, 10 for 60c.

Aster, China, 6 vars., 10 for 25c, 100 for \$1.25.

Geraniums, 5 vars., 10 for \$1.00.

Salvia, 2 vars., 10 for 75c.

Scabiosa, 10 for 60c.

Stocks, 2 vars., 10 for 25c.

Dahlias, plants only, 11 vars., 10 for \$1.25.

Delphiniums, Gold Medal Hybrids, 10 for \$1.50.

Aquilegia (Columbine), 2 vars., 10 for \$1.25.

Iris, 22 vars., 10 for \$1.25 and up.

For descriptions, etc., of the above and of many other plants, see Spring Planting List sent free on application.

Above prices include carriage prepaid.

JOHN CAVERS

RED CYPRESS HOT BED SASH



Size 3 ft. 2 in. by 6 ft. for 4 rows of 8 in. butted glass.

Price, \$1.20 in Clear Cypress.

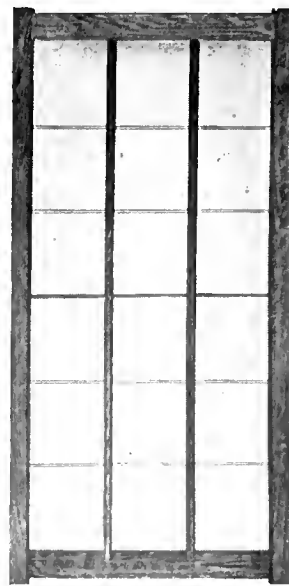
What a pleasure to have home-grown vegetables and flowers weeks ahead of the regular season. A hot bed fitted with our superior Hot Bed Sash will ensure this.

DURABLE

Our Hot Bed Sash are made of the very best material, put together to withstand the most severe usage, and are guaranteed to last for years.

All the joints are tight fitting, blind mortised and white leaded before being put together. A half-inch oak rod runs through the bars and into the stiles. A metal pin is driven into each of the bars and stiles through the rod. In this way each bar is held in the proper place and prevented from sagging.

Folder Sent on Request



Size 3 ft. by 6 ft. for 3 rows 10 in. lapped glass.

Price, \$1.15 in Clear Red Cypress.

BATTS LIMITED 374 Pacific Ave. **West Toronto**

This is the Book that will show you how you can have a BEAUTIFUL OLD ENGLISH GARDEN

THE OLD ENGLISH GARDEN owes much of its charm to the beauty of its simple herbaceous plants.

KELWAY'S COLOUR BORDERS of Paeonies, Delphiniums, Pyrethrums, Gaillardias and the like will enable you to reproduce this picturesque effect under almost all conditions of soil and climate. Borders are planned to fill any space, and on receipt of dimensions, carefully selected plants are sent beautifully packed, labelled and numbered in order for planting.

The cost is \$6.00 for every 10 square yards.

Full particulars and illustrations are given in the Kelway Manual of Horticulture mailed Free on receipt of 60c, by

KELWAY & SON
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Write for a copy of this useful book
It comes to you by return mail

KELWAYS PERENNIALS
FOR
CANADIAN GARDENS



Direct from
KELWAY & SON
The Royal Horticulturists
LANPORT ENGLAND

Lockie Wilson, was also the recipient of a token of esteem of the representatives present.

The following officers were re-elected by acclamation for 1914:

President, C. W. Baker, London; 1st vice-president, W. J. Kerr, Woodroffe; 2nd vice-president, F. F. Reeves, Humber Bay; secretary-treasurer and editor, J. Lockie Wilson, Toronto. Representative to Canadian National Exhibition, Thos. Delworth, Weston. Representatives to Horticultural Exhibition, Messrs. J. W. Rush, F. F. Reeves, Thos. Delworth, and James Dandridge.

Annapolis Valley Notes

The annual meeting of the Nova Scotia Fruit Growers' Association is looked forward to by larger and larger numbers each year as something that no up-to-date fruit-grower can afford to miss. This association held their fiftieth convention in January at Kentville, and had one member present, Mr. R. W. Starr, of Wolfville, who has been in attendance at every meeting since the Association was organized in 1863.

In no other place in Canada is apple scab quite so troublesome and hard to control as in the Annapolis Valley, and the fruit-growers gave the closest attention to Prof. L. Caesar of Guelph, in his address on the "Apple Scab and its Control." Many who had almost despaired in trying to grow clean apples, had their faith restored after listening to Prof. Caesar, and this coming season will use the spray pump more vigorously than ever. The time of application seems to be the vital factor, but thoroughness in applying and a good pump are also essential.

All winter apples bring record breaking prices, some good number three netting as high as three dollars, and number ones from four to six dollars according to variety. Like the forty cent eggs, however, the big prices only come when there are few apples to ship.

The United Companies are just closing the most successful year since their organization, and have handled no less than sixty per cent. of the crop of the Valley during the present season. Their next forward step will be in the direction of some system of pre-cooling for fall varieties of apples at their various warehouses. Thousands of dollars were lost to the fruit-growers last autumn from the rapid ripening and decay of the softer varieties during the warm weather of the fall.—M.K.E.

Okanagan Valley North

Charles Webster, Armstrong, B.C.

The past season has proved that the "Okanagan United Growers" is thoroughly organized for its purpose—selling and buying cooperatively. It must be said of members in this northern part of the valley that they stood loyally by their association. Mistakes have perhaps been made. Opposition from a few established firms, who refused to sell their business, has been keen. This, however, does not alter the fact that the countries or districts where cooperation is established are the most prosperous. Another year of earnest endeavor should put the big concern on a thoroughly satisfactory footing.

We have a contribution to the high cost of living: Celery, for which Armstrong is justly famous throughout Western Canada, realized the growers here 2½ and 2¼ cents

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalog free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

COMB FOUNDATION

Write for our prices before getting your wax made up. We can please you. Wax taken in exchange at market prices.

LEWIS MINOR, SMITHVILLE, ONT.

BUY CARNIOLANS IN CARNIOLA

Pure Carniolan Alpine Bees
Write in English for Booklet and Price List. Awarded 60 Honors.

Johann Strgar, - Wittnach

P.O. Wocheiner Feistritz

Upper-Carniola (Krain), Austria



Bees and Bee Supplies

Roots, Dadants, Ham & Nott's goods.
Honey, Wax, Poultry Supplies, Seeds, etc.

Write for a Catalogue

THE CHAS. E. HOPPER COMPANY
185 Wright Avenue, Toronto, Ont.

FOR SALE

Swarms of young bees in packages. Replace winter losses and strengthen weak colonies with young, healthy Italians. $\frac{1}{2}$ -lb. packages, 90c. each; 1-lb. packages, \$1.25 each; 2-lb. packages, \$2.45 each. Untested Italian Queens, the three-banded hustlers, 75c. each. We guarantee safe arrival. Write for wholesale prices.

BROWN & BERRY

HAYNEVILLE - - ALABAMA

QUEENS

Bred from Doolittles best Italian stock. It is to your advantage to book your order now. One dollar each.

P. TEMPLE

438 Gladstone Ave. - Toronto, Ont.

Safe arrival guaranteed

STRAWBERRIES

Your copy of our Strawberry Catalogue is now ready. A Post Card will bring it. It describes all the best varieties of Strawberries and Raspberries. Cultural directions and lots of other valuable information.

THE LAKE VIEW FRUIT FARM

H. L. McConnell & Son Grovesend, Ontario

First-Class Commercial Gardeners Wanted

A few good market garden properties for sale or rent. Locations good, prices and terms attractive. Cheap natural gas for greenhouse fuel. Write for details to

O. PATTERSON FARMER - Jeannette's Creek, Ontario

THE BEEKEEPERS' REVIEW

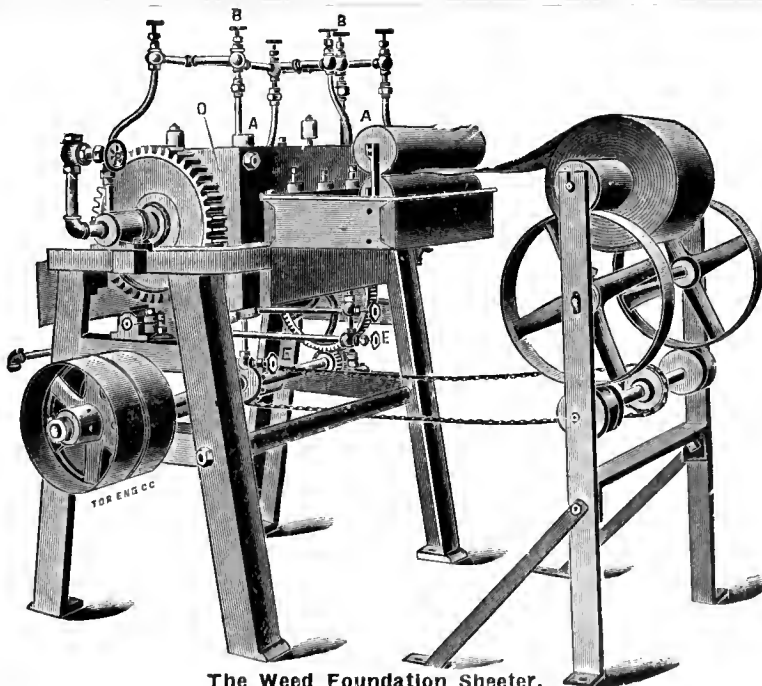
would like very much to enroll a goodly number of new subscribers for the year 1914. Listen! Besides the 3,000-colony series managed from one office, we will begin with the January number of the REVIEW a series of articles by a beekeeper "grey with experience" that we will call the Farmers' Series; or, How to Produce Comb Honey with Two Visits a Year. The editor of the REVIEW has looked into this system quite thoroughly, and believes that, with this method that will be described in the REVIEW during 1914, the busy man or farmer can harvest much more comb honey per colony, with about a fourth the work that is required with the ordinary system now in vogue. All progressive beekeepers should subscribe for two or three good bee journals. We are making a special low price on the REVIEW when clubbed with other bee journals.

Here is a (GLEANINGS, one year, \$1.00) Both, one year, for \$1.50
good one: (The REVIEW, one year, \$1.00)
Here { GLEANINGS, one year, \$1.00
is an { AMER. BEE JOURNAL, 1 yr., \$1.00 } All Three for \$2.00
other: { The REVIEW, one year, \$1.00
Extra for Canadian postage: Gleanings, 30c; American Bee Journal, 10c.
All three listed above 40c.

THE BEEKEEPERS' REVIEW - - - NORTHSTAR, MICHIGAN

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Made by the "Weed Patent Process"



The Weed Foundation Sheeter.

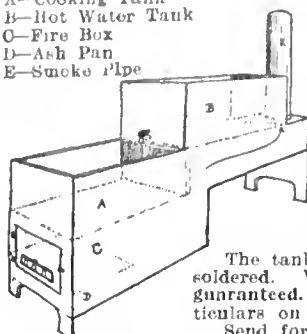
FOUNDATION made by this process excels all other in strength of texture. This combined in nice, straight uniform sheets, with good cell walls and thin base, gives it world-wide reputation for general excellence of quality. So much better than the ordinary, and costs no more—Try it.

Customers Wax made up by "Weed Patent Process"

Beeswax taken in payment of making at trade prices if desired

THE HAM & NOTT CO. Limited
BRANTFORD, ONTARIO

A—Cooking Tank
B—Hot Water Tank
C—Fire Box
D—Ash Pan
E—Smoke Pipe



Make Your Own Spray

Home Boiled Lime Sulphur is being used in increasing quantities by leading fruit growers and fruit growers' associations. They find that by making their own spray they can effect a considerable money saving, and at the same time produce a preparation that will do the work thoroughly.

It is an easy matter to make home boiled lime sulphur. The chief essential is a proper spray cooker. We manufacture two kinds of cookers, one with a single tank, and one with a double tank. (See illustration.) They are designed especially for this purpose, and will give the greatest efficiency with the greatest saving of fuel. They can be used for either wood or soft coal.

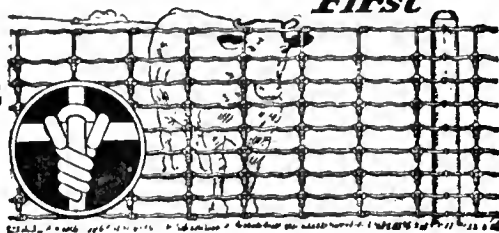
The tanks are made of heavily galvanized steel, thoroughly rivetted and soldered. Will not leak. They are built to give satisfaction, and are guaranteed. Made in five sizes, capacity 30 to 75 gals. Prices and full particulars on application. Get your outfit now. Write us to-day.

Send for pamphlet illustrating the finest pruning saw on the market.

STEEL TROUGH & MACHINE CO., Ltd., TWEED, Ont.

Frost Fence

First



On Both Sides of the Fence

YOU can judge a FROST FENCE by both sides—the outside and the inside.

Outwardly, a FROST FENCE is a pleasing thing to see. It stands straight and strong, well made and even all along its length. The extra heavy galvanizing it receives, defies rust and weather and makes it look well year after year. Observation will prove to your complete satisfaction that

A Frost Fence is Good to Look At

when it is first put up and when it has been up for years.

Inwardly—and here's where it counts most—the quality of FROST FENCE is the quality of the best Number 9 Hard Steel Wire, for we use nothing else. By using a wire of smaller gauge here and there, we could produce a lighter and cheaper fence, but then it wouldn't be FROST FENCE as you know it and as Canada expects it.

Did you know that we get a long start over other fence firms by making our own wire? Only that way are we sure of the sterling quality and fault-free perfection of every foot of wire in FROST FENCE. We have a strong claim to your trade in the very fact that

We Make Our Own Wire

The lock we use is unique in fence-making. Notice how it is wrapped around both stays and laterals, with a doubly secure wrap. That lock is a big factor in FROST FENCE satisfaction.

The nearest FROST dealer can give you more facts and a practical demonstration. If you are not already acquainted let us introduce you.

Write us direct if you can't get FROST FENCE.

We may need an agent in your district.

52

Frost Wire Fence Co.

LIMITED

HAMILTON - ONTARIO

per pound, and was selling in Calgary for 15 cents a pound. Of course, handling, crating, and expressage has to be allowed for. Nevertheless, someone is getting more out of it than the producer. The public market, somewhat despised at present, I fear, may yet have to be called into service to reduce the cost to the consumer. Anyway, the producer and consumer must get closer together by their own efforts; those who stand between will not voluntarily reduce their charges.

The New Tariff Conditions

R. R. Sloan, Payfield, Ont.

Just what effect the change recently made in the tariff regulations of the United States will have on the Canadian fruit industry is hard to foretell. Speaking from a producer's standpoint, I believe they will somewhat stimulate the prices of some of our Canadian fruit, more especially in Ontario.

There is always a certain amount of demand for such varieties of apples as Spies and Russets on the American market. Now the duty is somewhat lower, I think this demand will gradually increase.

When the crops are light in the States then we may look for a good market there, but when the American crop is heavy then we will have more difficulty selling in the United States markets. A few years ago we disposed of two crops of apples to a Chicago firm, but they found that the duty was too high to continue the business. We found Chicago to be a good market for Spies, Golden Russets, and Talman Sweet. Now the tariff has been lowered, this market may be again available. One thing we may be certain of it that if we grow good Ontario fruit of any kind, we need not fear the competition on any market.

Canning Apples

C. Smith, Highland Creek, Ont.

One of the problems before the apple growers is to increase the consumption of apples. One way to do this is to can apples after they have been peeled, cored, sliced thin, sweetened and baked about four hours. Prepared in this way they are delicious. They compare with apple sauce about the same as strawberries with prunes. They can be used in various ways.

With the use of modern machinery for peeling, coring, and slicing, they can be prepared much more economically than by the small consumer; the fact is the consumer will not take the time to prepare them.

The advantages over evaporated apples would be: they retain their flavor; they will keep indefinitely; they are not exposed to dust and dirt.

If the factories were located in producing centres it would solve the problem of transportation, cold storage and commission men and save the cost of barrels and packing. The grower would haul his apples to the factory as needed during the winter. I don't say that it would save all the cost of transportation, storage and commission, but they would be much more simple and less costly.

The factories now in operation would be able to keep their capital and employees busy the year around. The difference in the price now paid by the consumer and that received by the producer is too great. I advance this suggestion for the consideration of others better informed than myself.



**EVERY DAY IS RIPE GRAPE DAY
IF YOU HAVE
ONE OF OUR GREENHOUSES**

THINK of the pleasure of going into your glass-enclosed grape arbor and picking such fine big full clustered grapes as these! Then think of having a continuous supply of various varieties from Muskat of Alexandria to Gros Colemans, from May Day to Christmas Day!

Not just grapes, mind you, but beautifully colored, meaty, winey flavored fruit, the finest that can be grown.

A three-compartment graperie will give you the extreme limit of crop extension.

A simple lean-to, cool graperie built against a wall, will force your crop along a month to six weeks, without any fuel expense whatever.

So you see graperies are not the luxury imagined.

If you can afford an automobile for instance, you surely can afford one of our graperies or greenhouses.

Wouldn't you like to know what a house like the one below costs?

And by the way—why not attach your greenhouse directly to your garage. It has several advantages, done that way.

Let us send you our printed matter particularly pertaining to greenhouse and garage link-ups.



Lord & Burnham Co., Ltd. of Canada
Greenhouse Designers and Builders
12 Queen St. East, TORONTO
New York Boston Philadelphia Chicago Rochester

BEZZO'S FAMOUS PRIZE ASTERS

Prizes—New York State Fair, Canada National Exhibition and Berlin Horticultural Society. Price \$1.00 per hundred. Watch this space next month for list of varieties. Special prices to Horticultural Societies.

C. MORTIMER BEZZO - BERLIN, CANADA

COMING

Annual Spring Gardening and Planting Number, out April 1st. (See Publisher's Desk).

Send your consignments of APPLES to the Home Country to

Ridley Houlding & Co.
COVENT GARDEN
LONDON, ENGLAND

who specialize in APPLES and PEARS during the Season. Personal attention, prompt account sales and remittance

Correspondence invited

THE BRANTFORD IDEAL POWER SPRAYER

CANNOT BE EXCELLED



We also manufacture complete lines of Gas and Gasoline Engines, Windmills, Tanks, Grain Grinders, Steel Saw Frames, Water Boxes, Pumps, etc.

Catalogues describing our different lines, sent on request

GOOLD, SHAPLEY & MUIR CO. Ltd., Brantford, Ont.

RENNIE'S I.X.L. TOMATO

EXTREMELY EARLY,
WONDERFULLY
PROLIFIC

A week earlier than the Earliana. More productive than the Chalk's Jewel. As large as the Plentiful. As solid as the New Globe. In fact, the world's leading extremely early Tomato.

In our field tests, I.X.L. Tomato proved to be a week to ten days earlier than the Spark's Earliana, with an abundance of fruit larger and more prolific than Chalk's Jewel; in fact, any number of specimens could be found as large as the Plentiful Tomato. The I.X.L. Tomato is without a single exception the leading extremely early Tomato. Do not experiment with it, but plant your entire early crop in I.X.L. Tomato. Your crop will net you big returns.

1. A beautiful, brilliant red color.
2. Vines are a perfect mass of large, smooth fruit, a single plant yielding 1 bushel.
3. Fruit is extremely early, enormously abundant, ripens all at once.
4. Vines compact and can be placed two feet apart in three-foot rows.
5. The largest growers tell us that we cannot say too much in favor of the I.X.L. Tomato.

Price: 1 lb. \$2.25, oz. 75c. 1/2 oz. 40c, pkt. 15c

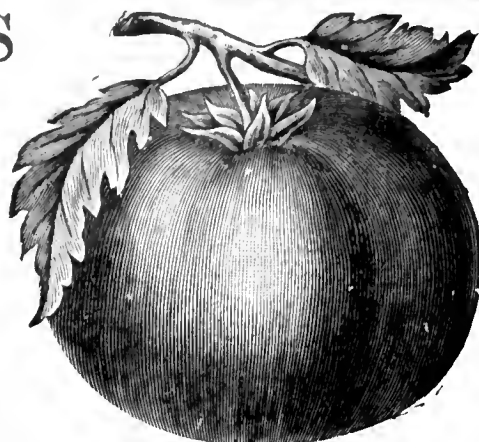
OUR SPECIAL OFFER

We want every person who uses seeds to see our 1914 Seed Book and try this Splendid Early Tomato, and we will send a packet for 10c. with Seed Book. This book is full of new photographs of Vegetables, Fruits and Flowers. Send your address to-day.

WM. RENNIE CO., Limited

Cor. Adelaide and Jarvis Streets,
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Branches at Montreal, Winnipeg and Vancouver



Progressive Jones, Says:

Harab Fertilizers Make Champion Crops

The success my friends have had with Harab Fertilizers has made me proud. Mr. A. Gilchrist, of Runnymede Road, Toronto,

used Harab Fertilizers and raised Gladioli which won the Gold Medal Diploma at Toronto Exhibition. Another Harab user was a prize winner at the International Apple Growers' Association, Chicago. Mr. F. G. Bridge of St. James Park, London,

used Harab Fertilizers for tomatoes, which

grew to giant dimensions, eight of them weighing 8 lbs. 6 oz.

I am sure you will get champion results, too, if you will use Harab Fertilizers according to directions. The Harab Fertilizer

booklet tells why these animal fertilizers are superior to other fertilizers. If you'll take my advice, you'll write for a copy right now.

*Yours for bumper crops
Progressive Jones*

The Harris Abattoir Co., Limited

Fertilizer Dept., Strachan Ave., TORONTO, Canada



Lime-Sulfur Injury

In discussing the prevention of lime-sulfur injury with reference only to that injury to fruit or foliage caused by the dissolved sulfur in the spray. Prof. V. I. Savro, of the Oregon Agricultural College, in a recent bulletin, writes as follows:

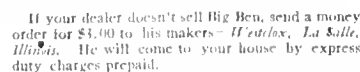
A fine mist spray would not be as injurious as a coarse or drenching spray. It is good horticulture, in fact, to apply only a light even coating of spray, where possible. Though this procedure can be followed in many parts of the country, however, it is difficult for some regions. In some of the fruit growing sections, a fine mist spray can be rarely used. Frequently the winds are strong enough to necessitate a coarse spray in order that the tree may be sprayed thoroughly. In such cases no choice remains; a coarse spray must necessarily be applied. Drenching, however, may be avoided by using care and judgment.

In cases of lime-sulfur injury induced by previous fungus infection, there is no question as to the proper procedure. It is much more advisable to destroy the leaves by means of the spray than to allow the fungus to become destructive.

The most simple method that presents itself of avoiding lime sulfur injury is to weaken the soluble sulfides by increased dilution. From our own experiences and those of several others we are led to believe that lime-sulfur properly made (i.e., boiled for not more than one hour) is not injurious at the strengths generally recommended. Home-boiled preparations are rarely injurious for this reason. On the other hand, we know of lime-sulfur factories that prolong boiling for three or four hours. This gives a concentrate that is more injurious (on account of the greater proportion of sulfides in solution) than a properly made concentrate testing the same specific gravity. It is rather difficult to recommend a practical method of deciding whether the concentrate is liable to be injurious or not, and the procedure to follow upon ascertaining this point. In general, a concentrate that has been boiled for not more than one hour, may be considered safe at the dilutions generally recommended (1 to 30, at 30 degrees B. for apples, 1 to 40 for pears). Again we wish to call attention to the fact that we are considering only that injury caused primarily by the sulfides in the spray. Our own experiments have shown, in one case, that injury followed an application of lime-sulfur diluted 1 to 75. This, however, was not strictly lime-sulfur injury, but injury due to other causes to be explained later.

Another method of avoiding lime-sulfur injury is by rendering the sulfides insoluble. This may be done by adding various substances to the spray that will break down, not necessarily all the sulfides in solution, but enough to render the remaining sulfides non-injurious. It may be argued, however, that in breaking down the polysulfides the insecticidal properties of the spray are impaired. In reply it may be noted that lime-sulfur is used during the growing season primarily as a fungicide, and its insecticidal value at the strength used upon foliage is questionable.

I have found The Canadian Horticulturist a gem as regards its relation to the fruit interests.—Ernest Flindall, Lovett Ont.



Use the Available Kind of Fertilizer

For many crops all the *available* plant food that is needed is one grain to each pound of soil.

When such a small quantity of food must do all the work for your crop, it is exceedingly important that what you put into the soil in the form of fertilizer shall be *available*—that it shall have not only the right quantity, but the right quality and right crop value.

It has cost us forty years of experience to know how to mix the right kinds and the right quantities of ingredients for fertilizer.

Bowker's Fertilizers

accomplish also the more difficult task of getting the right blending, the right solubility into a mixture which will run readily and freely from the farmer's planter, and which will remain dry and drillable as well as efficient until used in the field. We make a brand to fit every crop need.

Write and tell us what your crops are, and we will send you our illustrated catalogue.

BOWKER FERTILIZER COMPANY
43 Chatham Street, Boston, Mass.

60 Trinity Place, New York. P. O. Box 806, Buffalo, N. Y.

British Columbia

Secretary W. J. Bonavia, of the Department of Agriculture, reports that the work of the Interior Fruit Pests Inspector, who has had a total staff of sixteen men under his direction was greatly increased last year by the outbreak of fire blight in the Okanagan and Boundary districts. This disease, which is so prevalent in the Pacific Coast States to the south, has been vigorously combated, and by the cooperation of orchardists, has been largely stamped out.

D. D. McLennon, of Fruitvale, a suburb of North Yakima, recently sold his forty-six acre orchard to H. J. Madill of Calgary for one hundred and fifteen thousand dollars. Mr. McLennon realized thirty thousand dollars from his crop last year.

At a meeting of the members of the provincial horticultural staff, held shortly before the first of the year, the opinion was freely expressed that the Canadian apple box will be discarded in the Okanagan district in favor of its American rival. The packing schools, which assemble in various parts of the province, will still retain the Canadian box for demonstration purposes during the coming season, except in the Okanagan Valley where the American box will be employed, although this year the American box may become the recognized standard throughout the province.

The Canadian box measures ten inches by eleven inches by twenty inches. It is longer, narrower, and shallower than the American box, which measures eighteen inches by eleven and a half inches by ten and a half inches. "As will be seen from these measurements the cubic capacity of the two boxes is practically identical," said Provincial Horticulturist R. M. Winslow, after the meeting, "so that the retailer will not suffer, provided that the box price remains the same. At the same time there will be an advantage to the trade in a slightly lesser cost in handling, while the standardization of these boxes, with the shooks used in packing other fruits, will slightly lower the cost to the packer. In addition to these slight gains, the American standard has the appearance of holding more apples, which will have some effect in the marketing of the fruit."

Bulletins

Recent bulletins include one on "Lettuce Drop," by the University of Florida Experiment Station, author O. F. Burger. Bulletin 217, of the Maine Agricultural Experiment Station, Orono, is entitled Woolly Aphis of the Apple. Commercial Peach Growing in Michigan is dealt with in special Bulletin 63 of the Michigan Agricultural College Experiment Station, East Lansing, Michigan. The authors are F. M. Barden and H. J. Eustace. The Connecticut Agricultural Experiment Station, New Haven, Connecticut, has issued Bulletin 179, dealing with Soy Beans.

"A Preliminary Report on the Pollination of the Sweet Cherry" is the title of Bulletin 116 of the Oregon Agricultural College Experiment Station, Corvallis, Oregon. The author is V. R. Gardiner. Another bulletin just issued by the same station is entitled "An Investigation of Lime-Sulphur Injury: Its Causes and Prevention." The author is V. I. Savro.



E W I N G S

Try Something New In Your Garden Next Spring

Have you ever grown Asparagus—Pole Beans—Cress—Kohl Rabi—Salsify? Get the new Catalogue of

Ewing's Reliable Seeds

and study up some of these uncommon but delicious vegetables. Plant them along with some of your regular "stand-bys"—they'll add interest to your gardening and pleasurable variety to your meals.

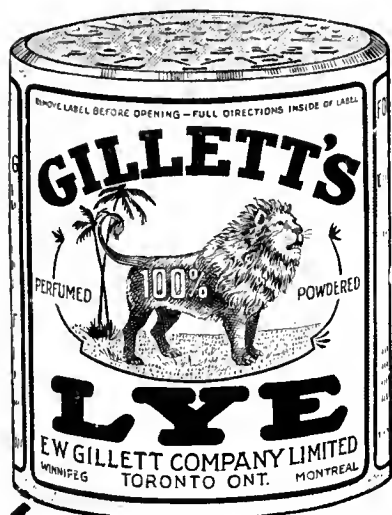
Ewing's Seed selections are strictly up-to-the-minute, and at the same time they are backed by a reputation of over 40 years of sterling satisfaction on Canadian farms and gardens.

Write at once for our Illustrated Catalogue, and if your Dealer hasn't Ewing's Seeds, buy Direct from us.

THE WILLIAM EWING CO., LIMITED,
Seed Merchants,
McGill Street, MONTREAL.



S E E D S



Spring Spraying

The first spray in the spring is the most important one, and the results obtained from the use of Gillett's Lye have demonstrated that there is nothing to equal it, especially when used properly before the buds begin to swell.

One can of Gillett's Lye dissolved in five gallons of water makes a proper solution for **full grown trees**, but a weaker solution, say, about one can of Gillett's Lye to about 10 gallons of water, is suitable for **young trees and vines**.

A strong solution used on trunks and limbs of the older trees will **cleanse the bark** of all moss and fungus growth and kill all insects. The earth should be well scraped back from the foot of the trees, and the trunk and limbs should be well sprayed, and in three or four days the bark will be perfectly clean and look bright. The earth around the trees should be well saturated, thus acting as a preventive and fertilizer as well. In a short time the tree will be vigorous and healthy.

If you have not received a copy of our spraying pamphlet, send name and address on postal card, and this valuable little book will be mailed you free of charge.

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MADE BY THE COTTAGERS OF BUCKINGHAMSHIRE.

This is the old-fashioned lace made on the cushion, and was first introduced into England by the Flemish Refugees. It is still made by the village women in their quaint old way.

Our Laces were awarded the Gold Medal at the Festival of Empire and Imperial Exhibition, Crystal Palace, LONDON, ENGLAND, for general excellence of workmanship.

BUY some of this hand-made Pillow Lace, it lasts MANY times longer than machine made variety, and imparts an air of distinction to the possessor, at the same time supporting the village lace-makers, bringing them little comforts otherwise unobtainable on an agricultural man's wage. Write for descriptive little treatise, entitled "The Pride of North Bucks," containing 200 striking examples of the lace makers' art, and is sent post free to any part of the world. Lace for every purpose can be obtained, and within reach of the most modest purse.



COLLAR—Pure Linen.
\$1.00.



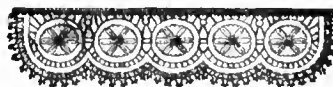
DAINTY HANDKIE—70c.
No. 910.—Lace 1½ in. deep.

Collars, Fronts, Plaisters, Jabots, Yokes, Fichus, Berthes, Handkerchiefs, Stocks, Camisoles, Chemise Sets, Tea Cloths, Table Centres, D'Oylies, Mats, Medallions, Quaker and Peter Pan Sets, etc., from 25c., 60c., \$1.00, \$1.50, \$2.00, up to \$5.00 each. Over 300 designs in yard lace and insertion from 10c., 15c., 25c., 45c., up to \$3.00 per yard.

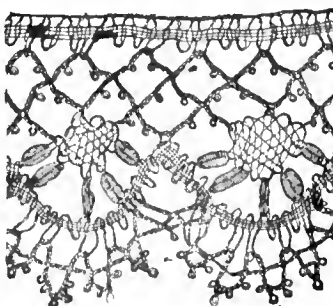
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Mrs. Armstrong having over 100 Irish peasant girls connected with her industry, some beautiful examples of Irish hand made laces may be obtained. All work being sold direct from the lace-makers, both the workers and customers derive great advantage.

Every sale, however small, is a support to the industry.



(1½ in. deep.) STOCK—Wheel Design.
Price 25c. each. (Half shown.)



No. 122.—60c. per yard.

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Peerless Ornamental Fencing accomplishes two great purposes. It beautifies your premises by giving them that symmetrical, pleasing, orderly appearance, and it protects them by furnishing rigid, effective resistance against marauding animals, etc.

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is made of strong, stiff, galvanized wire that will not sag. In addition to galvanizing, every strand is given a coating of zinc enamel paint, thus forming the best possible insurance against rust. Peerless ornamental fence is made in several styles. It's easy to erect and holds its shape for years.

Send for free catalog. If interested, ask about our farm and poultry fencing. Agents nearly everywhere. Agents wanted in open territory.

Banwell Hoxie Wire Fence Co., Ltd.
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Sprayers

Sulfur Dusters

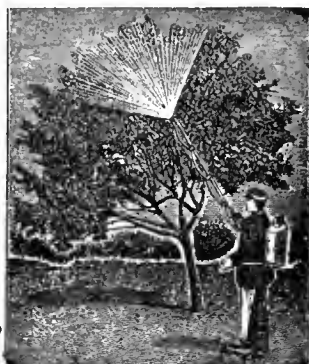
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Knapsack, Pack Saddle or Horse Drawn
Power Sprayers

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Manufacturer,
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TO DESTROY APHIS, THRIPS, ETC.

Without Injury to Foliage

SPRAY WITH

"BLACK LEAF 40"

Sulphate of Nicotine

"Black Leaf 40" is highly recommended by experiment stations and spraying experts throughout the entire United States, also by Canadian experts.

Owing to the large dilution, neither foliage nor fruit is stained.

Black Leaf 40" is perfectly soluble in water; no clogging of nozzles.

PACKING:

In tins containing 10 lbs. each, 2 lbs. each, and ½ lb. each.

A 10-lb. tin makes 1,500 to 2,000 gallons for Pear Thrips, with addition of 3 per cent. distillate oil emulsion; or about 1,000 gallons for Green Aphis, Pear Psylla, Hop Louse, etc., or about 800 gallons for Black Aphis and Woolly Aphis—with addition of 3 or 4 pounds of any good laundry soap to each 100 gallons of water. The smaller tins are diluted in relatively the same proportions as are the 10-lb. tins.

PRICES: In the United States, our prices for the respective sizes are as follows:

10-lb. tin, \$12.50; 2-lb. tin, \$3.00; ½-lb. tin, 85c.

IN CANADA, Dealers usually charge about 25% to 30% over the above prices because of the Canadian duty, etc. Consult your dealer about this.

THE KENTUCKY TOBACCO PRODUCT CO.

(Incorporated)

LOUISVILLE - KENTUCKY

Items of Interest

At a farmers' club meeting held at Smithdale, Simcoe county, Ont., on January 6th, it was decided to organize a cooperative fruit growers' society on the lines of the Norfolk Fruit Growers' Association. A committee composed of F. E. Webster, Ben. Kerr, T. H. Conner, Dan. Carmichael and Lockey Paterson were appointed to canvass apple growers not present, and call a meeting for the purpose of framing by-laws, and other business.

In Oregon, fruit growers are required to maintain their orchards in good condition or stand the consequences. Recently every apple tree in a forty-four acre orchard near Portland—two thousand eight hundred in all—was cut down by the state fruit inspector and a force of men. The owner stood by protesting, but was unable to stop the destruction of his orchard. Neighbors claimed the trees had every disease known to apples. The owner was given a month in which to comply with the law requiring annual spraying. Failing to do so the trees were cut down and burned.

Messrs E. D. Smith & Son, Limited, of Winona, Ont., the well-known nurserymen recently forwarded a shipment of a general assortment of the best varieties of American grape vines to one of the Government Experimental Stations in Australia, a shipment of apple trees to Madeira, Spain, and a general assortment of apple, pear, and plum trees and shade trees to Manchuria, China. These shipments were arranged and dug with the utmost care, and the Ontario Government Inspector, who examined the trees, expressed the opinion that he had never before seen nursery stock that had been packed so thoroughly or carefully.

The Canadian Trade Commissioner at Auckland, New Zealand, under date of December 22, 1913, reports as follows: "The Vancouver boats bring large quantities of apples, and your commissioner accompanied the inspector, who said they were a very fine lot. This business is capable of great expansion. Many boxes of United States apples arrive by each boat, so it is quite evident there is a large demand. The Canadian shipper does not appear able to transact business on a sufficiently extensive scale in this regard."

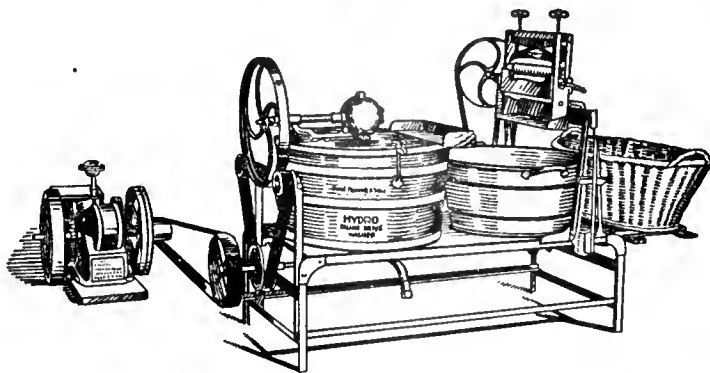
At a mass meeting of citizens of Armstrong held recently, the following resolution was passed:

"That this meeting is against Chinese or Orientals owning farm lands within the city of Armstrong, and in the municipality of Spallumchen, and requests owners of farm lands to bind themselves and their heirs and assigns for a period of five years not to sell to Chinese or Orientals nor to lease land to them within that period."

Recent Publications

Among the publications that have reached The Canadian Horticulturist recently is a book entitled "Every Day in My Garden," by Virginia E. Verplanck. It is beautifully bound and well illustrated, the illustrations including a number of colored plates. The book is intended to be a guide for work in the garden and home, during each month of the year, and is based mainly on the latitude of Eastern New York. The actual reading matter is short. The publishers are Wm. R. Jenkins Company, 6th Avenue and 48th Street, New York. Price \$2.50.

Let the
Gas Engine
help your
wife to do
her washing



HAS it occurred to you that your other business partner—your good wife—is still using the out-of-date, back-aching methods of years ago—wearing herself out with the drudgery of the old-fashioned washday? If you have a gas engine on your farm you need a

Maxwell

That little 1½ H.P. gas engine that works your churn and cream separator and operates your Pump Jack, Root Pulper and other small implements, will do the clothes washing and wringing for your wife—and do it quickly and satisfactorily. This Maxwell "Hydro" Power Bench Washer works equally well by gas power or by electricity, and can be driven by a one-

"HYDRO" BENCH WASHER

sixth H.P. motor. We make it in one, two and three tub machines, and the mechanism is as perfect as science can invent.

One of these machines would be a genuine boon to your wife when washday comes round. Make her a present of one—and let your gas or electric power help her to do her part of the work and lighten the burden of washday!

Write to-day for further particulars of this
Maxwell "Hydro" Power Bench Washer.

DAVID MAXWELL & SONS, DEPT. "H" ST. MARY'S, ONT.

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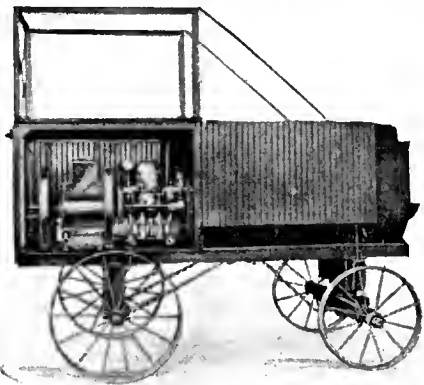
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100 % SERVICE

Engine can be used for other work all the year round. Truck makes a capital farm wagon. Sills of channel steel, with steel platform.

Price of Complete Outfit, Only \$230

This includes all accessories, Engine, Pump, Tank, Bamboo Extensions, Agitator, Hose, Nozzles, etc.

Do not buy a Sprayer until you have investigated the "Goes Like Sixty" Power Sprayer. Send for Sprayer Catalogue to-day.

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Get One Barrel More per Tree

That's what a good sprayer will add to your fruit crop yearly.

Over 400,000 fruit growers and orchardists are proving this fact every season with Goulds Sprayers.

Because Goulds Sprayers apply the spray in such a uniform way that every leaf, every twig is saturated; every crevice is treated. The proper amount of solution is used and no more. This saving in mixture alone pays for a Goulds Sprayer over and over again. Made in 50 sizes and styles. Guaranteed to give absolute satisfaction.

**GOULDS
RELIABLE
SPRAYERS**

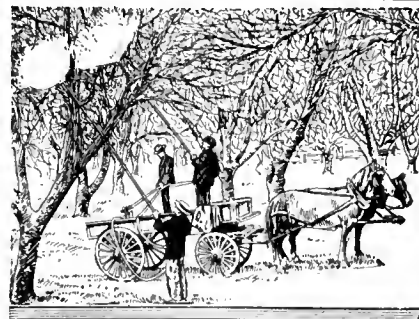
are designed by engineers whose training and experience have worked out countless improvements. Don't fool with out-of-date sprayers. Their waste eats up many times what a Goulds Reliable Sprayer would have cost you first.

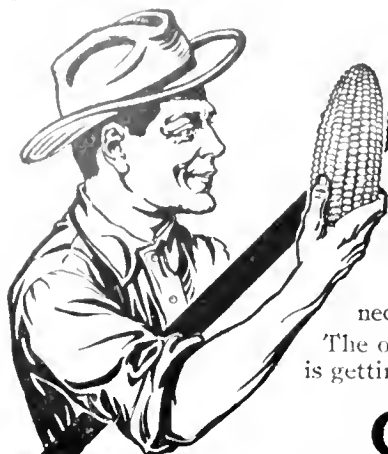
40-Page Book Free

Brimful of practical spray facts. Tells what mixtures to use, what amount and how to apply them, proper time to spray, how to conquer insects and fungous growths of all sorts. Sent Free. Write for it. (21)

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Largest Mfrs. of Pumps for Every Purpose





EVERY FARMER KNOWS

That fertilizers are an absolute necessity to successful farming.

The only question that confronts him is getting the *right* fertilizer.

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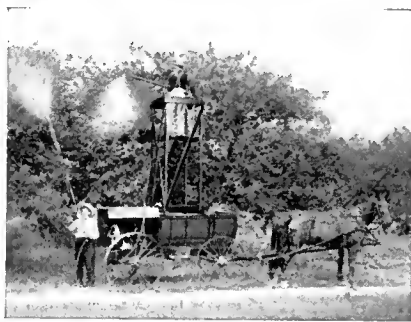
are prepared under the supervision of chemical experts—are backed by forty years' reputation, and are guaranteed to be in perfect condition chemically and mechanically.

Gunns' fertilizers are finely ground, insuring an even, easy distribution. For users of our fertilizers we are ready at all times to analyze samples of soils and recommend the fertilizer best suited, making it up especially if necessary.

For fertilizer book and other information, write

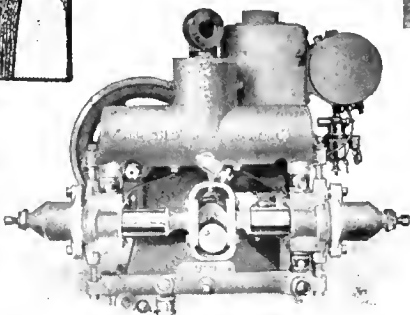
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"FRIEND" Sprayers



Western King

If you have a power sprayer, EXCHANGE engine and pump for our POWERFUL UNIT MOTOR-PUMP and PROPELLER AGITATOR, or sell it and buy a whole new outfit. "FRIEND" outfits are now made in many styles, TO SUIT YOUR TASTE, in-



The "Friend" Motor-Pump

Mr. Fruit Grower
You have heard of the celebrated

"Friend" Power Sprayer

But you have not heard of the 1914 MODELS.

**Western King
and Queen**



Western Queen

cluding motor-pumps, outfits on bed without trucks, and complete machines—built in large and small sizes. The SIMPLEST, MOST COMPACT, MOST POWERFUL and FINEST WORKING power sprayers ever produced. Many Westerns sold in Canada last year to growers who are STAUNCH FRIENDS this year.

WRITE FOR CATALOG TO-DAY,
STATING REQUIREMENTS.

"FRIEND" MFG. CO., GASPORT, NEW YORK

Nova Scotia

The apple shipments from the Annapolis Valley for the last four months of 1913 were 105,532 barrels less than the corresponding four months of 1912, which were also about forty per cent. less than for the four corresponding months of 1911. This drop was caused by the weather conditions of the spring of 1912 being bad for the apple crop, and the spring of 1913 being still worse than for a number of years. The apple shipments from Halifax the last four months of 1913 were 354,397 barrels, against 459,929 barrels during the same period of 1912. The shipments for the month of December, 1913, were 69,974 barrels, against 91,147 barrels for December, 1912, showing a decline of 21,173 barrels.

While the quantity of apples grown in Nova Scotia has been declining for two years, the prices have so enhanced that it is considered by many that the past season will be more remunerative than for a number of years.

The cooperative movement started three years ago has given wonderful results, enabling the grower to obtain the best prices for his apples and potatoes at the least possible expense. The latter maintained throughout the heaviest shipments the record price of fifty cents a bushel to the grower, who also effected a great saving in the prices he had to pay for the feed and fertilizer he required.

The United States Markets

D. Johnson, Forest, Ont.

I had some experience last year in the United States markets, which was very unsatisfactory. Friends in Cleveland and Detroit advised us that they were paying two dollars fifty cents a bushel for peaches. We found this to be true, so in company with some neighbors we shipped to commission merchants in those cities five cars of peaches. I consider that we would have made two hundred dollars a car more had we sold these peaches in Canada, or that my neighbors and myself would have made one thousand dollars more had we not shipped the five cars across the line. The fruit was of the finest quality, carefully packed and shipped in good refrigerator cars. It appears to me that the American consumers are paying big prices for their peaches, but these big prices are not enjoyed by the producers.

Regarding apples, I had heard of the big prices for apples, and had hoped for a good market right at our door for our apples. Accordingly, as soon as the new tariff came into effect, I visited a number of the big United States cities with the intention of selling our pack to them. I found that I could not make a satisfactory sale there, so returned home and sold at a much better price to a western firm than we could get on the other side. In view of these facts I can only say that I do not expect much from the United States markets in future years when their prices were so much below our own last season in the midst of one of the shortest crops the United States has had for years.

Most of the standard varieties of fruit could be delivered to market in better condition and with less loss from decay if they were promptly cold stored after picking.—J. A. Ruddick, Dairy Cold Storage Commissioner.

EGGS

EXPRESS PREPAID—all the standard breeds of Chickens, Ducks, Geese and Turkeys. HIGH-CLASS STRAINS. Write today for catalog describing breeds—also poultry supplies. IT'S FREE.
J. H. RUTHERFORD, Box 62
Caledon East, Ontario



The Earliest Tomato Grown

Without exception D & F's O. K. Tomato yields an *earlier* crop than any other on the market.

Grown from single plant selections covering a period of five years. Fruit is exceptionally large, a beautiful red and full of strong healthy new blood.

D. & F's HIGH GRADE SEEDS

are used by successful Gardeners in every section of the Dominion.

58 FIRST PRIZES were awarded at the Montreal Horticultural Exhibition, Sept., 1913, to Mr. F. S. Watson, on products grown from D. & F's High-Grade Seeds.

Send to-day for our Seed Annual. It is a complete garden guide. We mail it free.

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38 St. Jacques-Cartier Square - Montreal

Rennie's Seeds Grow

the Finest Vegetables
and the Best Flowers
in the Land

Success in planting, whether it be in planting an entire garden, a bed of either simple or intricate design, or an extensive farm tract, depends upon many things, the principal one being the Quality of the Seeds.



Rennie's Seeds

are absolutely dependable—have been since 1870—44 years ago. Their reputation for uniform purity and fertility—a reputation that has always been strictly maintained—is YOUR assurance of success in planting.



Rennie's Catalogs are unusually comprehensive and mighty interesting and instructive. They contain innumerable hints and suggestions of great value on cultivation. And the descriptions are not exaggerated, but can in every case be relied upon.

Send us your name to-day and we will send you these instructive Catalogs as issued

WM. RENNIE CO., Limited

Also at Montreal, Winnipeg and Vancouver

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Streets, **TORONTO**

Glorious New Spencer Sweet Peas

KING WHITE—It attains perfection in every detail, which goes to make up a Spencer Sweet Pea. It is the experts' ideal for perfect form. The improvement in form, size, vigor, waviness and purity stands eminently out when compared to other White Spencers, and calls for unstinted admiration. The number of four-blossomed sprays and the great length of stem will appeal strongly to those wishing a good White for decorative work. Packet, 20c.

"EMPRESS EUGENIE"—The color is a delicate tone of light gray flaked with light lavender. A vase or bunch gives a most charming effect. The flowers are of large size, beautifully waved and crimped. A vigorous grower and very free bloomer, throwing a large proportion of four-flowered sprays. Packet, 20c.

ILLUMINATOR—A glorious orange-salmon Sweet Pea. In dull light the color appears to be a flat orange scarlet, but when in bright sunshine or artificial light, the color is completely changed, and it appears a bright salmon cerise, sparkling with orange. It introduces a new shade of color to Sweet Pea enthusiasts of rare beauty, and with its additional attributes of great vigor, floriferousness and symmetry, it is sure to captivate all who give it a place in their garden. Packet, 20c.

"WEDGEWOOD"—It is a true self and is appropriately named, as its color throughout is a unique shade of wedge-wood blue, a color so popular in China. It produces profusely flowers of good size, borne almost uniformly in four-flowered sprays, well placed, upon long stout stems. Of finest Spencer form, the standard and wings are well waved. Packet, 20c.

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SMALL FRUIT PLANTS

Gooseberries. Josselyn! Josselyn!! Red Jacket. Downing. Pearl. Houghton. Currants. Perfection! Perfection!! Ruby. Cherry. White Grape. Lee's Prolific. Champion. Black Naples. Black Victoria. Boescoop Raspberries. Herbert! Herbert!! Herbert!!! Cuthbert. Marlboro. Brinkley's Orange. Golden Queen. Strawberry-Raspberry. — Garden Roots. Asparagus. Rhubarb. Write for Catalogue.

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Iron Frame, Pipe Frame and All Wood

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167 1/2 KING ST. E. - HAMILTON, ONT.

For Use
in any
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No. 190. Horizontal. 50-Gallon

The Right Kind of Sprayer

Means the one that just fits your purpose. You need to consider capacity, pump, engine, pressure, mixing, straining sediment, stability on hillsides, using your own wagon, engine or sprayer with balance of the outfit to fit what you already have. Get the right sprayer for YOUR work and you won't have any cause to be dissatisfied. We show here but three of the 70

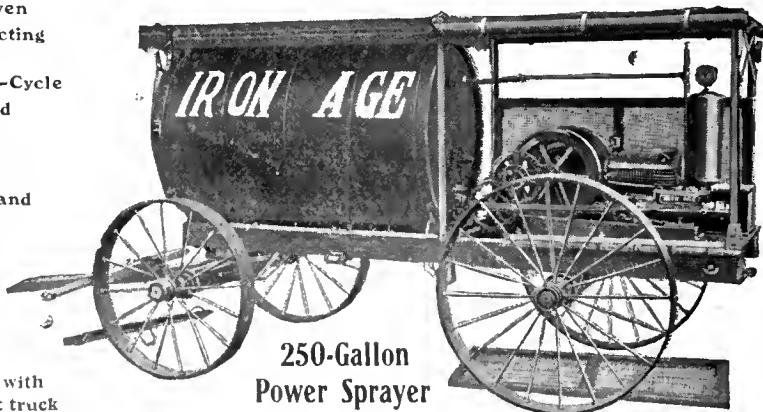
IRON AGE

They are built up in units so that you can buy what you need now and add to the outfit later if necessary. All have the best pumps in use on any sprayers—least slippage among eight of the best in a disinterested test. Solutions touch only brass or galvanized parts. Hemp packing, bronze ball valves, both easy to get at. Pumps outside. Power Sprayers are 50, 100, 150, or 250 gallons capacity. 200 pounds pressure with 6 or 8 nozzles.

Ask your local dealer about this line and write us for our new "Spray" book, spray information and copy of Iron Age Farm and Garden News.

The Bateman-Wilkinson Co. Ltd., 460 Symington Ave., West Toronto, Ont.

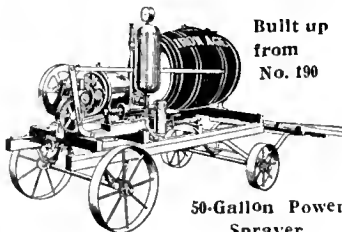
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Pump
2-H. Four-Cycle
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Furnished with
or without truck

250-Gallon
Power Sprayer

Bucket, Knapsack,
Barrel, Power, and
Traction Sprayers



Built up
from
No. 190

50-Gallon Power
Sprayer

Eastern Annapolis Valley

Enoie Buchanan

On January 16th a meeting was held in Berwick, attended by a director from each fruit company, to decide whether or not to put in a cold storage plant. It was concluded that the Central Office of the United Fruit Companies, Limited, should go ahead with a trial plant. As yet the location is not decided, but it will probably be near to a source of natural ice, supplying about seven hundred tons which would be required to run this proposed Cooper-Madison system size of cold storage plant. It is estimated that the cost will be less than fifteen cents a barrel, and that this will be the beginning of a series of cold storage plants through the Valley. Another fruit company has been organized at Hortonville, and a warehouse is to be built there.

At the request of the United Fruit Companies a subsidy of five thousand dollars was granted by the Government for a steamship service to run from Annapolis, Nova Scotia, to ports in England.

Yarmouth, to the west of us, closed its first annual seed fair on February 8th. In addition to growing wheat, oats, peas, buckwheat, beans, beets, and potatoes, the Federal authorities are offering bonuses for raising cabbage and turnip seed in commercial quantities.

In addition to the seed fair, a short course in agriculture, with a staff of instructors from the Agricultural College, Truro, has also been held in Yarmouth. The attendance began with 122, and 50 more applications were received. Another short course of this description will be held in Bridgewater.

The winter has gradually been growing more severe. On February 12th the thermometer dropped to twenty-two degrees below zero in Berwick, where it was said to have been the coldest day within the last thirty years.

As another good step in cooperation, our local paper, the Register, is devoting a large space each week to the doings of the United Fruit Companies, which is now their official organ.

Bulletins

Recent publications that have reached The Canadian Horticulturist include the following: "Plum Culture and District Lists of Plums Suitable for Canada, with Descriptions of Varieties," by W. T. Macoun, Dominion Horticulturist, Experimental Farm, Ottawa; "The Box Packing of Apples," by E. F. Palmer, B.S.A., being Bulletin Number 216 of the Ontario Department of Agriculture. This bulletin is well illustrated and contains much helpful information. "The San Jose and Oyster Shell Scale," by Prof. Caesar, B.S.A., being Bulletin Number 219 of the Ontario Department of Agriculture, Toronto.

The Utah Agriculture College has issued two bulletins, one Number 128, entitled "Blooming Periods and Yields of Fruit in Relation to Minimum Temperatures," by A. M. Ballantyne, Logan, Utah, and the other, Bulletin Number 129, by E. D. Ball and W. M. Ball, of Logan, Utah, entitled, "Coddling Moth Studies." "Success with Hens" is the title of a book by Robt. Joos. This book covers the subject of poultry raising with unusual fullness. It is published by Forbes & Company of Chicago and sells at \$1.00 a copy.

Parks, Gardens and Lawns Planned

Expert advice regarding varieties of trees, shrubs and plants. No stock for sale.

CHARLES ERNEST WOOLVERTON
Landscape Gardener, GRIMSBY, Ont.

The Kelway Manual of Horticulture
is THE Gardening Book, 60c. post
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KELWAY & SON

The Royal Horticulturists
Langport, Somerset, England

A BETTER HOME LIGHT

Costs less than 1c. a night
for 300 Candle Power light.

Here is
a lamp that is truly
a wonder. "The Fault-
less Lamp" makes its
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oil—will produce 300
Candle Power of
bright, white light at
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Simple, strong, most
beautiful portable
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LAMP

CANNOT EXPLODE.
CAN BE ROLLED ON
THE FLOOR WHILE
BURNING. REQUIRES
NO CLEANING.

Why sacrifice your
eyes with a poor light
when the saving of
oil alone will pay
for a "Faultless" in
a short time.

Write for free book-
let "M." showing how
it works, and giving
other valuable infor-
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MAC LAREN & CO.

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*"Turns the soil
better"*

The Bissell

Because of their
shape, plates
of "Bissell"

Orchard Harrows turn over soil cleaner,
better than you've been accustomed to
have it done. Attach wings and Harrow
extends out 12 ft. or more to cultivate
under limbs of trees—closes up narrow
enough to cultivate between grape vines.
Combination Harrow too—reversible
from "Out Throw" to "In Throw."
Low seat, well-braced frame. Ask your
dealer for information or write Dept. N
T. E. Bissell Co. Ltd., Elora, Ont.
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A Free Trial Package is Mailed to Everyone
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A. L. Rice, a prominent manufacturer of
Adams, N.Y., has discovered a process of
making a new kind of paint without the use
of oil. He calls it Powderpaint. It comes in
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required is cold water to make a paint, wea-
ther proof, fire proof and as durable as oil
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free trial package, also color card and full
information showing you how you can save
a good many dollars. Write to-day.

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Have a Fine Assortment of

Trees, Vines, Plants, Ornamentals, Etc.

For Spring Planting

For Satisfaction, Plant St. Riges, Himalaya and Ever Bearing Berries

Our prices are right and so are the trees. Send for priced catalogue
if you have none, also your want list for special prices on Apple
Trees. We can please you. Try Seed Potatoes, Lincoln, New.

Look over our Price List. No Agents. Wanted, a Nurseryman

A. G. HULL & SON



Fertilizer "Actions" that "Speak Louder Than Words"

Every farmer desiring to increase his farm profits will be interested in this Department of Agriculture Report on the "Acre Profit" competition held in Welland County last summer under the supervision of R. Austin, B.S.A., District Representative.

"Home Mixed"

Such as would be recommended by "Raw
Materials" combines.

Competitor—Roy Mackenzie Barron,
Fonthill, Ont.

Crop: POTATOES
Fertilizer Used on Acre: 600 pounds.
100 lbs. Nitrate of Soda }
300 lbs. Basic Slag } "Home Mixed"
200 lbs. Potash }

Also 8 loads of Manure.

Yield: 135 Bushels.

Cost of Production: \$44.25

(Including rent of land, labor, cost of
fertilizer, etc.)

Net Profit from Acre: \$33.15

(Average yield for Province, 1913—116 bushels. Marketable Potatoes valued at 60c
per bus. in each case.)

These results show that increased profits can be made by farmers who use
Factory Mixed fertilizers, and particularly those who use

"Davies Factory Mixed"

As recommended by those who realize
that "Results speak louder than Words."

Competitor: Will Chrysler, Allanburg, Ont.

Crop: POTATOES

Fertilizer used on Acre: 500 pounds.

Davies 3-6-10 Potato Grower
(Factory mixed)

Also 6 loads of Manure.

Yield: 296 Bushels.

Cost of Production: \$42.35

(Including rent of land, labor, cost of
fertilizer, etc.)

Net Profit from Acre: \$135.25

DAVIES SPECIAL MIXED FERTILIZERS

The results of this competition show that although 100 pounds more of the Home
Mixed fertilizer and two extra loads of barn-yard Manure were used, that Factory
Mixed fertilizer netted a profit of \$102.10 per acre more than the Home Mixed fertilizer.

You should give these facts your most serious consideration.
Now is the time to take action. Go to your Fertilizer dealer to-day, arrange
with him for the purchase of sufficient Davies' Special Mixed fertilizer to use on your
farm crops this spring—500 pounds per acre is a good average application.

Remember—Davies' FERTILIZERS not only produced larger crops per acre, but do
so economically and also improve the quality of the crop, securing for you a more
profitable harvest in every way. Write for our free book, "Farm Davies' Way." "We
have or want to have an Agent near You."

THE DAVIES COMPANY LIMITED

R. INNES, B.S.A., Manager, W. TORONTO, ONT.

More-
Finer
Fruit

USE
the
quickest,
surest, most econom-
ical method of spraying;
preventing disease, blight;
killing bugs; assuring bumper
crops of finest fruit. 300,000
farmers, gardeners have found

Brown's Auto Spray

most efficient—Style No. 1 shown here.
Capacity 4 gallons. Easily carried over
shoulder. Does more work than 3 ordi-
nary sprayers. Patented Auto Pop Nozzle
—throws any kind of spray—does not clog.

Better Vegetables, Bigger Crops



Just the size for small trees, fields
up to 5 acres, poultry houses, etc.
For large sprayers—Brown's

NON-CLOG ATOMIC NOZZLE

sprays any solution
without clogging.
Guaranteed. 40
styles, sizes—
hand—power.
Write for Free
Spraying
Guide.

**The E. C.
Brown Co.**
57 Jay St.
Rochester,
N. Y.



Vinegar Plants Cider Presses

We are the exclusive Canadian Agents for the Hydraulic Press Mfg. Co., Mount Gilead, Ohio. If you want a Cider Press of any kind or a Vinegar Plant, write us.

The Brown Boggs Co.
Limited
HAMILTON, CAN.



Choice Fruit

is the result of systematic cultivation, and spraying with

SHERWIN-WILLIAMS
NEW PROCESS
ARSENATE OF LEAD



THE SHERWIN-WILLIAMS Co.
of Canada, Limited
MANUFACTURERS OF INSECTICIDES
Offices and Warehouses:
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Halifax, N. S., London, Eng.

Northern Grown Trees

Apple, Pear, Plum, Cherry, Peach,
Grapes, Small Fruits, Deciduous and
Evergreen Ornamentals, Roses, Flowering
Shrubs, Climbers, etc.
Catalogue Free: It tells the whole Story.

J. H. WISSMER, Nurseryman, Port Elgin, Ont.

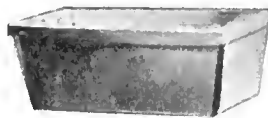
50,000

FIRST CLASS FRUIT TREES

Two year old, 3 to 5 ft. high. To introduce our stock will sell while they last at \$20.00 per 100, \$2.50 per 10. All varieties of Plums, Pears, Peaches, Cherries and Apples. Special prices to Associations.

W. P. POWE & SON - CAINSVILLE, ONT.

SUPERIOR Plant Boxes



PRICES RIGHT

Delivery in March and
April. Order NOW
to ensure prompt ship-
ments.

**Canada Wood Products
Co.**
ST. THOMAS - ONT.

Directors for Vineland

F. M. Clement, B.S.A., has been appointed director of the Provincial Government Experimental Station at Vineland, in succession to A. D. Harkness, who recently resigned. Mr. Clement is a graduate of the Ontario Agricultural College, where he specialized in horticulture. He afterwards acted as district representative for some years in Elgin county, distinguishing himself in the horticultural branch. Over a year ago he was appointed assistant in the horticultural department of Macdonald College, at Ste. Anne de Bellevue, which position he now holds. He will assume his new duties about the first of April.

Ontario Rose Society

The annual meeting of the Rose Society of Ontario was held in Toronto, February 16th, with E. T. Cook, vice-president of the Canadian Rose Society, in the chair. The officers' reports showed that the society had made encouraging progress. Not only had the membership been extended, but the financial position of the society had been placed on a sound basis by contributions, not only from members, but from others interested in rose growing in Ontario.

The president spoke of the enthusiasm of the members. Their efforts had shown their determination to make the rose the flower of Ontario. The society, he said, was rapidly attaining one of its greatest objects, which was to have as large a number of affiliated societies as possible. Mr. J. T. Moore, of Moore Park, he said, had helped the society greatly by his influence and financial support. It was seldom that any society had secured and retained so much real support as the Rose Society of Ontario had. Three large rose shows were planned to be held this year.

Ottawa Flower Guild

The Y.W.C.A. was filled with happy children, Saturday afternoon, February 14, bringing their bulbs and plants to the sixth bulb exhibition of the Ottawa Children's Flower Guild. The affair was entirely informal, and as cards had been sent only to the one hundred and twenty children to whom bulbs and plants had been given last November, a great many of the children were absent. The hall was crowded, many parents and friends being present. Mr. W. T. Macoun was judge. The result of the children's work was surprising to every one, the majority of the plants being fit for any florist's window. Mr. R. B. Whyte, the president, presided.

Mr. W. T. Macoun expressed his surprise at finding that the children under twelve years of age far surpassed the elder members of the Flower Guild. He had found it exceedingly hard work to decide which were the best plants, so keen was the competition, and therefore he had added seven extra prizes to those given by the committee. One plant taking a prize, to which Mr. Macoun drew attention, was planted in builders' sand, so that no one could offer the lack of good soil as an excuse for not growing bulbs. Mr. Macoun held up each prize plant for public inspection, giving the reasons for and against excellence and form. It was a delightfully instructive address.

Use The Owen Compressed Air Spraying System—Save Money

The Owen system embodies a central plant in which is installed an air compressor driven by a gasoline or steam engine. Two heavily galvanized, high pressure steel tanks are also provided complete with valves, fixtures, etc. The tanks are mounted on a suitable platform which can be placed on any ordinary farm wagon. When spraying, one tank is filled with about 200 lbs. of compressed air and the other with the spraying liquid. The tanks are filled at the central station at the same time.

The Owen Compressed Air Spraying System

provides an even, steady pressure at all times. The spraying mixture is kept thoroughly agitated by an air agitator. One man with one set of tanks can thoroughly apply 1200 gallons of mixture per day. With two rigs, one man can apply 2000 gallons per day. There is no complicated machinery—no pump cylinders coming in contact with the liquid—no engine to be hauled around courting trouble. It's the most simple, most satisfactory spraying system ever devised.

When not used for spraying, the engine can be used for any other purpose and the compressor will furnish air for pneumatic water systems, etc.

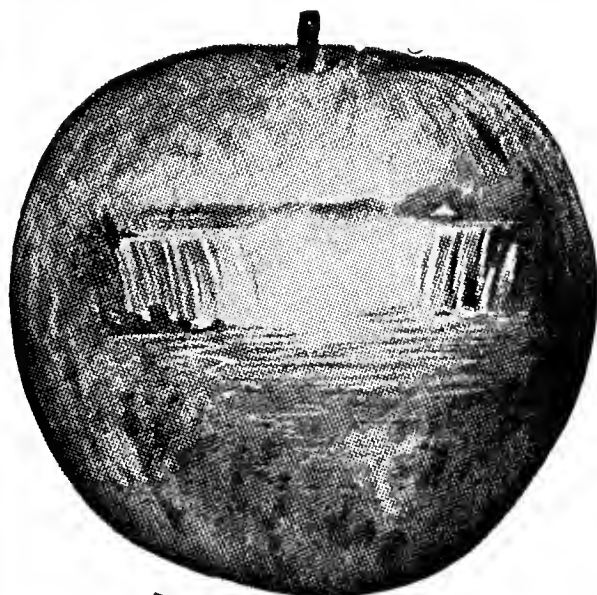
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W. H. Owen Sprayer Co., Sandusky, Ohio



USE **DON'T PAY FREIGHT ON WATER** **NIAGARA SOLUBLE SULPHUR**

The Sulphur Spray in powder form. Controls Scales quicker and better than Lime-Sulphur. A positive control for Apple Scab, Peach Curl and other fungus diseases.



TRADE MARK REGISTERED

It has the following advantages over Lime-Sulphur: Is cheaper, easier to handle, no leakage or loss, no sediment, keeps indefinitely, saves freight and storage.

100 lbs. of Soluble Sulphur will make more spray than a 600-lb. barrel of solution.

Remember Soluble Sulphur was used by over 500 growers in Ontario last year. It will be used by thousands this year. There is a reason for this. Soluble Sulphur does the work. Saves time and money and eliminates many of the objectionable features of spraying. This material can only be procured from us. Place your order early so as to be sure and be supplied.

If you have never used this great spray let us send you full particulars.

ARSENATE OF LEAD

The highest grade only. The kind that mixes easiest. Does not burn foliage. Contains the highest analysis of arsenic.

SWIFT'S is made up to a quality not down to a price. It is always full weight, guaranteed. The best is always the cheapest.

NIAGARA LIME-SULPHUR

The pioneer and reliable solution. Highest in Beaume test. Clear and uniform.

Write us for spraying supplies.

Wherever Fruit Excels Niagara Spray is used

Niagara Brand Spray Co., Ltd.

BURLINGTON - ONTARIO

FOR SALE

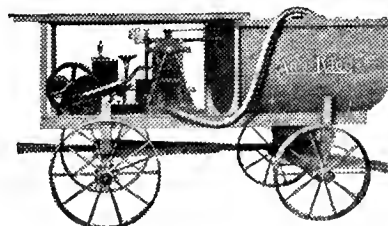
25 Acres of Choice, Early, Warm Land, specially adapted for the growing of Virginia Leaf Tobacco, and all early Fruits and Vegetables. Five acres in Peach and Cherry Trees about six years old. Buildings consist of Tobacco Barn, Stable and small house, and also a Hot House 20 ft. x 80 ft. This property is beautifully located, and only three quarters of a mile from the Leamington Post Office, a bargain at..... **\$12,000**

Apply to P.O. Box 504, Walkerville, Ont.

16 Acres beautifully located, choice early land Fruit Farm, situated on the Lake Front Road, near Leamington, Ont. Twelve acres in fruit trees from one to five years old, Peaches, Plums and Apples. Buildings consist of a new six room Bungalow, Stable and Packing House. Price..... **\$9,500**

Apply to P.O. Box 504, Walkerville, Ont.

SPRAY WITH AN ANTI-KLOG



They give the highest efficiency through long hard terms of service. There is an **ANTI-KLOG** of the right capacity for those who have much and those who have little spraying to do.

They spray better—spray better longer—and represent more downright sprayer value—than any other spraying devices manufactured.

Ease of operation, simplicity, strength and a number of other individual features appeal to every user. The **ANTI-KLOG** nozzels make it very difficult for any mixture to clog the outlet.

GUARANTEED FOR 5 YEARS

You are absolutely guaranteed when you buy an **ANTI-KLOG**, as each is sold under an unqualified guarantee of 5 years' service.

Send for our new free catalog and give your dealer's name. You should now make preparations for spring spraying.

ILLINOIS METALS COMPANY 2420 West 22nd Street - CHICAGO, ILL.

Strawberry Plants

FOR SALE

For 1914 we are offering strong, vigorous, well rooted stock of twelve standard varieties. Price List Free

ONTARIO NURSERY CO., Wellington, Ont.

Mated pairs of Silver, black and patched foxes for sale.

Also options on 1914 puppies for summer delivery.



JOHN DOWNHAM, Box N. Strathroy, Ont.



You Can Make Your Orchard Yield a Bigger Profit



Get my BIG FREE BOOK, "Why, How and When to Spray." Contains 74 illustrations of insects and fungus diseases and gives the remedy for each. A book that every farmer, truck- or fruit-grower should have. Also shows a complete line of sprayers—28 different styles—man-power—barrel—horse—and gasoline engine power for field and orchard.

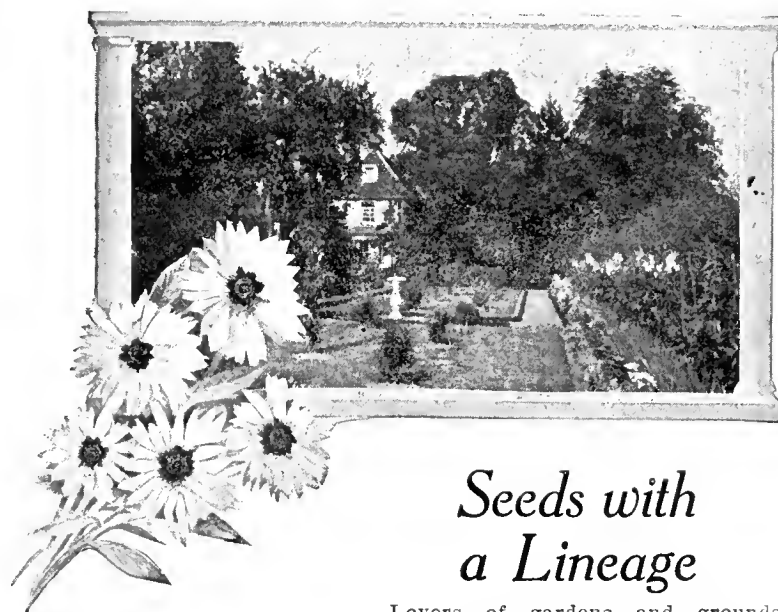
10 Days FREE Trial—5 Year Guarantee

No Money in Advance—No Freight to Pay



Our liberal selling plan enables you to buy a HURST SPRAYER without any risk, and pay for it at your convenience. Write today and tell me what size sprayer you need or what you have to spray and get my great

Money Saving Offer and BIG FREE BOOK. It will save you money in buying a sprayer and increase your profits. Write at once. E. H. LAMIELL, General Manager, THE H. L. HURST MFG. CO., 986 North Street, Canton, O.



Seeds with a Lineage

Lovers of gardens and grounds should know that at Raynes Park, London, England, Messrs. James Carter & Co. have the finest and most complete testing and trial grounds in the world.

Their equipment and the unique methods employed guarantee the quality of their seeds. For generations they have been cultivating, selecting and perfecting until Carters Tested Seeds have reached the highest percentage of purity and germination.

In England, where the art of gardening is most highly developed, Carters Seeds rank first. Ask any gardener with experience in Great Britain—he will know Carter.

In Canada, Carters Seeds have achieved a tremendous success, both on large estates and in smaller gardens.

We import these seeds direct from Raynes Park and carry a complete stock at our Toronto warehouse. We issue an American Catalogue, with all prices in American money. It includes selected varieties of Flower and Vegetable Seeds, with valuable directions for planting and cultivation.

A copy of this Catalogue will be mailed you FREE. Write for it to-day.

CARTERS TESTED SEEDS, Inc.
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**Carters
Tested
Seeds**

If you are interested in upkeep of Lawn, Tennis-Courts or Golf-Course, write for the "Practical Greenkeeper." Every Championship Golf-Course in America is to-day using Carters Tested Grass Seeds.

Fruit Growers Convene

The annual meeting of the Northumberland and Durham Fruit Growers' Association was held in Cobourg recently. The feature of the convention was the attention that was devoted to matters connected with the proper marketing of fruit. Mr. D. J. Pauline, of Brandon, Manitoba, suggested that growers in the east should obtain a list of western buyers and send them a monthly statement of the number of barrels and the varieties of each that they have on hand. This would give a better and wider market and lead to more competition in buying. It was stated by Mr. Pauline that some sections have effected a marked improvement in their pack by requiring the packers to insert their names and addresses in each box or barrel of fruit packed by them. Mr. P. J. Carey, Dominion Fruit Inspector, pointed out that west of Brandon the apple trade is confined almost exclusively to boxes. He was of the opinion that a much larger portion of the Ontario crop should be box packed.

The following officers were elected: President, F. B. Lovekin, Newcastle, Ont.; secretary, R. S. Duncan, Port Hope, Ont.; treasurer, Thos. Montague, Ont. Directors: W. J. Bragg, Bowmanville, Ont.; V. H. Gibson, Newcastle, Ont.; W. S. Driver, Perrytown; J. H. Hayden, Cobourg, Ont.; J. G. Wait, Wicklow, Ont.; J. V. Turpin, Colborne, Ont.; R. B. Scripture, Brighton, Ont.; W. H. Dempsey, Trenton.

South African Fruit Trade

Reporting from South Africa to the Department of Trade and Commerce, Transvaal Commissioner W. J. Egan, stationed in Cape Town, writes as follows in regard to Canadian apples shipped to that market last fall:

Opinion among the various dealers varied in reference to Canadian apples received in South Africa this year. Durban dealers report grading and packing of Nova Scotia fruit to be all right in every particular. They complain, however, that Nova Scotia Kings and Wagners on the whole were a great disappointment, as they were poor in color and in keeping qualities. The Ontario fruit, such as Ben Davies, King Russets, and Spies, left nothing to be desired.

Port Elizabeth dealers were well satisfied with the consignments to them, but stated that they did not receive all they had arranged for, one large dealer claiming that although he booked space early last March he failed to secure accommodation for his second shipment.

The apples which arrived in Cape Town were, with the exception of one lot of Golden Russets on the s.s. Benguela, in very good condition, but were not graded in all cases as they should be for export. The difference in grading of the apples received in Cape Town and other ports must be attributed to the fact that almost all the apples shipped to this port are purchased by local dealers who visit Canada annually, while the fruit to other ports is consigned by Canadian producers or dealers.

The South African market during October, November, and December is a splendid one for good Canadian apples, and will command high prices. This office invites early correspondence this year with a view of consignments for next year and advice in the securing of space in cold storage chambers early in the season.

A FARMER'S GARDEN

IS without real serious meaning to many thousand farmers because they think it is too hard work or it is not convenient to work a horse. So many farmers fail to understand what truly wonderful possibilities there are in modern hand tools.

IRON AGE Wheel Hoes and Drills

(Now made in Canada)

do all of the sowing, hoeing, cultivating, weeding, furrowing, ridging, etc., in any garden with better results, far less work and some real pleasure, for the operator. 38 or more combinations at \$3.00 to \$15.00. Ask your dealer about them and write us for new booklet. "Gardening with Modern Tools" also copy of our paper "Iron Age Farm and Garden News"—both are free.



The Fateman-Wilkinson Co., Limited
462 Symington Ave., Toronto, Ontario.

THIS WASHER MUST PAY FOR ITSELF.

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse, but, I didn't know anything about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right," but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now, this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way. So, I thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing the clothes. Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges, nor break buttons, the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

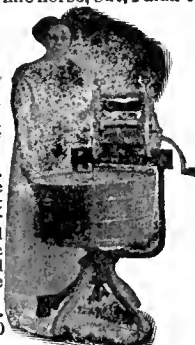
Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight, too. Surely that is fair enough, isn't it.

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

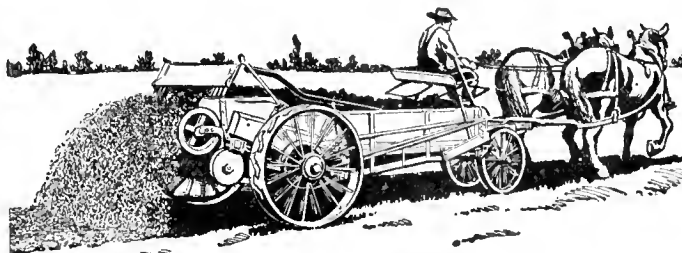
And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 60 cents a week 'till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me personally:
K. F. MORRIS, Manager, 1900 Washer Co., 357 Yonge St., Toronto, Ont.



International Harvester Manure Spreaders



THE I H C LINE GRAIN AND HAY MACHINES

Binders, Reapers
Headers, Mowers
Rakes, Stackers
Hay Loaders
Hay Presses

CORN MACHINES

Planters, Pickers
Binders, Cultivators
Ensilage Cutters
Shellers, Shredders

TILLAGE

Combination,
Peg and Spring-Tnoth,
and Disk Harrows
Cultivators

GENERAL LINE

Oil and Gas Engines
Oil Tractors
Manure Spreaders
Cream Separators
Farm Wagons
Motor Trucks
Threshers
Grain Drills
Feed Grinders
Knife Grinders
Binder Twine

STEEL frame on steel wheels—that is the lasting basis on which International manure spreaders are built. All parts, including box, beater, spreading mechanism, apron, are built by experts, using best materials, from careful designs based on field tests.

Every detail is strong and durable, built for long life and ease of draft. Among the features that will interest you are these: Simple protected beater driving mechanism, all of steel; load carried on rear axle, insuring traction; reversible gear and worm; low, easily loaded box, with ample clearance underneath; end gate, preventing clogging of beater while driving to the field; etc.

All styles are in the I H C spreader line, high and low, endless and reverse apron, and various sizes for small and large farms. Our catalogues will tell you more. Write for them and let us tell you also where you may see I H C manure spreaders.



International Harvester Company of Canada, Ltd

At Hamilton, Ont.; London, Ont.; Montreal, P. Q.; Ottawa, Ont.;
St. John, N. B.; Quebec, P. Q.



NA-DRU-CO TASTELESS PREPARATION OF COD LIVER OIL

The Wonderful Spring Tonic

If you have had a hard winter, Na-Dru-Co Tasteless Preparation of Cod Liver Oil will help you to recuperate quickly and avoid the coughs and colds so prevalent during the changeable spring weather.

In this preparation the nutritive and curative properties of the best Norwegian Cod Liver Oil are combined with Hypophosphites, Cherry Bark and Malt Extract in a form that is really pleasant to take and easily digested even by the most delicate.

Thus the great objection to Cod Liver Oil is removed and every one who is run down or suffering from throat or lung troubles can take advantage of its unique medicinal and strengthening qualities.

Add to this the Tonic Hypophosphites, the healing Cherry Bark and the invigorating Malt Extract, and you have probably the finest food-tonic known.

Get a 50c. or \$1.00 bottle from your Druggist.

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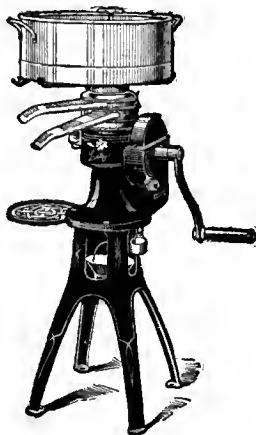
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British Columbia Fruit Growers' Convention

The 24th annual convention of the British Columbia Fruit Growers' Association was held in Victoria, B.C., during the last week in January. It was crowded with important discussions relating not only to provincial but to broader issues as well.

President W. C. Ricardo, in his presidential address, stated that the industry stands to-day in a stronger position than it did this time last year. He reviewed the work done in the past year, the success of Messrs Abriel and Foggo's interview with the Dominion authorities in regard to more rigid enforcement of the Sales and Inspection Act, the starting, by the aid of the Provincial Government, of eight local cooperative associations in the Okanagan with a central agency, which on the whole have worked together successfully, and he ended with a warning that "if there ever was a year in which the British Columbia growers should watch the cost of production and the grading of their product, it is this year of 1914, with the largest crop in the North western States and our own Province ahead of us."

The transportation Committee's report referred to the growing popularity of express service over freight for fruit, and found that complaints of railway rates far fewer than in former years.

Messrs Foggo and Abriel strongly advocated in the advertising committee's report the need of advertising by the Province as a whole by the grower and by the shipper. They advocated joining with the Alberta Government in running an exhibition train through that province and possibly through Saskatchewan. J. Johnston believed the best method was through the Provincial exhibits at the different fairs.

GRATIFYING REPORTS

The report of the executive and secretary noted that the fruit growers of the four North-western states of America had formed a "Deciduous Protective League" to do for their fruits what the Citrons Protective League had done for other fruits. The Provincial Government grant was increased from \$3,500 in 1912 to \$6,500 in 1913, and the total number of members showed an increase of one hundred and one, there being now six hundred and ninety-six altogether. Hearty endorsement was made of the work of the British Columbia Entomological Society and the association was urged to support its executive in the support they had given to the National Fruit Growers' Association.

Fruit growers were urged to encourage the sentiment for inter-provincial trade and two delegates had already gone to the prairies to interview the governments and the grain growers.

Parcels post received the hearty support of the executive, who saw in it the prospect of wider distribution and greater facility in the shipping of consignments. They pointed out that for every railway station there were two post offices in Western Canada. They had recommended to the Postmaster-General a twenty-five-pound minimum.

IRRIGATION PROBLEMS

Hon. W. R. Ross, Minister of Lands, addressed the convention on "Public Irrigation Corporations" and the proposed legislation authorizing their formation. He reminded his audience that water had come to be looked on as one of the resources of the province, and one which could be conserved through wise use and careful administration. The need for this was not so ap-

parent in former days, when bottom lands were sufficient for the settlers, and it was natural that it was not realized that the water problem was one that required technical training to solve. More recently contentions over conflicting water rights had become serious and widespread and had aroused public sentiment to demand legislation.

Prior to 1909 men believed that all they had to do was to record a notice to take water, and it was theirs for ever, no matter how little land they had to use it on or whether they made due development. They might even have subdivided or sold their water holdings.

Mr. Ross referred to the impossibility in many cases of the individual settler bringing water on to his land, whereas by the combination of fifty or one hundred this was made feasible. Education along these lines was necessary in the province. They had stores of experience to draw on in the United States.

To form a public irrigation company a petition signed by landowners representing fifty per cent. of the value of the lands to be incorporated would be necessary. Then after careful survey and investigation the whole matter would be laid before the people of the district affected and a vote taken.

OTHER SPEAKERS

Other addresses were delivered on Fruit Growing and Marketing in the Yakima Valley by W. P. Sawyer, The Methods of the North Pacific Fruit Distributors, by H. C. Sampson, secretary to that organization; by E. Robinson, on the North-western Fruit Exchange; and by R. Robertson, of the Okanagan United Growers, Ltd.

Mr. Robertson sketched the growth of the cooperative movement in the province.

SALES METHODS

Mr. Sampson, equipped with facts to his fingertips, told of the five hundred thousand acres planted with fruit in the North-western States, which will come into bearing in twelve years, and of the dispositions they were making to market the one hundred and twenty-five thousand carloads. He laid down the principle that the individual grower cannot sell his own crop. Both the selling and buying of fruit wholesale are a life study, and unless the seller is equipped with reports and knowledge equal to those in the buyer's possession he must come off second best. He told of the power of his company over railways, who in certain districts, where there was no competition, put on unfair rates, and of how quickly these climbed down when told that retaliation would take place in Washington or some place where competition did exist. He told of the amount recovered for the growers for fruit damaged or ruined by the railways, and that within a few weeks, and he outlined what he believed would be the future of the company's career of usefulness.

ASIATIC EXCLUSION

The last day's proceedings witnessed a decision at last arrived at on the Asiatic question. On such an important matter it was felt that any representations made to the Government should have the weight of the whole association behind them. The resolution ultimately passed petitions the Provincial Government to persuade the Dominion and Imperial Governments to total exclusion for the future of all Orientals from Canada, and that in the meantime relief should be given as far as possible to

BEES FOR SALE

For Sale — Early swarms at fall prices. $\frac{1}{2}$ lb. bees \$1.00, 1 lb. bees \$1.50, f.o.b. here. Add price of Queen if wanted. Untested Italian Queens, 75c each, Tested Italian Queens, \$1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction I guarantee to any Express Office in Man., Ont. and Que., which has connection with Detroit, Mich. This is undoubtedly the best way for Northern honey-producers to increase and improve their stock. Delivery begins about April 5th. Capacity, 40 swarms per day. You will get your bees when wanted, or money back by return mail.

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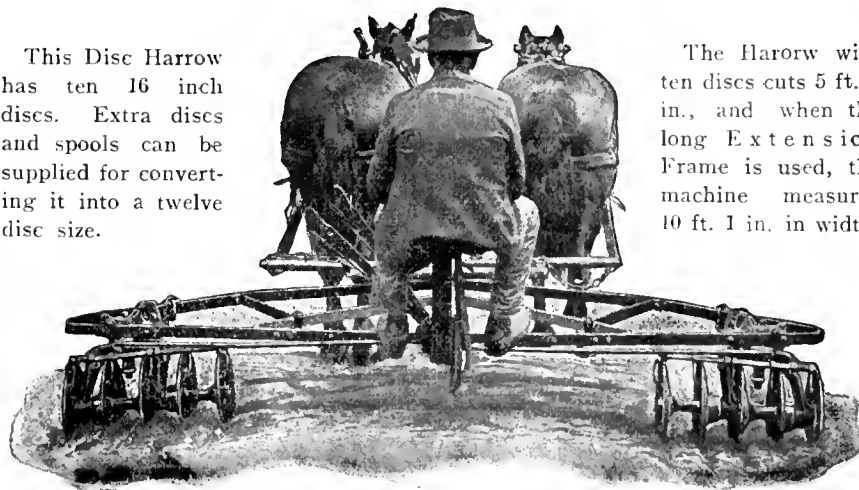
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MASSEY-HARRIS

Orchard Disc Harrow

This Disc Harrow has ten 16 inch discs. Extra discs and spools can be supplied for converting it into a twelve disc size.



The Harrow with ten discs cuts 5 ft. 6 in., and when the long Extension Frame is used, the machine measures 10 ft. 1 in. in width.

It is reversible—covers the roots or not, as you wish. The gangs are interchangeable in their position on the frame so as to throw the soil to or from the trees and vines.

It is adjustable to any depth, in the middle or at the ends, by means of gang hinges. Levers adjust each gang separately to any angle, regulating the amount of dirt thrown. In grape cultivation the Massey-Harris

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IMPLEMENTS FOR
THE FRUIT GROWER:
ORCHARD HARROWS
ORCHARD CULTIVATORS
SPRAY OUTFITS
VINEYARD PLOWS
SPRING TOOTH
HARROWS
GRAPE and BERRY
HOES, Etc.**

cultivates all of the ground. A plow cannot do this. It is a good side-hill harrow. The steel frame is in one piece. Strong arches or yokes support the gangs; separate bearing boxes take up the friction.

We furnish as an extra attachment, a steel extension frame. With it the operator can cultivate under the trees, close to the trunks.

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U.S.S. Self Centre Steel Moldboards, highly tempered and guaranteed to clean in any soil. Steel beams, steel landsides and high carbon steel coulters. Clevises can be used either stiff or swing. Each plough is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plough. Shares of all widths—specials for stony or clay land. The plough shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. Ask for catalogue.

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Plough.
25 styles
to choose
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NIAGARA DISTRICT FRUIT FARMS.—Before buying it will pay you to consult me. I make a specialty of fruit and grain farms.—Melvin Gayman & Co., St. Catharines.

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IF YOU WANT to sell a farm consult me.
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I HAVE some of the best Fruit, Stock, Grain and Dairy Farms on my list at right prices.
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SALMON ARM, Shusway Lake, B.C. has the finest fruit and dairy land in B.C. No irrigation necessary; mild winters, moderate summers, no blizzards or high winds; delightful climate; enormous yields of fruit, vegetables and hay; good fishing; fine boating amidst the most beautiful scenery, and the Salmon Arm fruit has realized 25 cents per box more than other fruit in B.C. Prices of land moderate, and terms to suit. Apply to F. O. Haydock, Salmon Arm, B.C.

WANTED—Young Man, single, with some experience, as beekeeper, to begin about May 20th. Must be strictly temperate, industrious and willing to work hard in busy season. State age, experience and wages expected, with board supplied, in first letter. —Ewart McEvoy, Woodburn, Ont.

BEEES wanted, up to 250 colonies. Particulars to Box 23, Fisherville, Ont.

WANTED — Empty top storey Hives (Langstroth); Extractor and Apiary equipment generally.—J. R. Black, Aurora, Ont.

BEEES WANTED—Either with or without other equipment. Give full particulars to Wm. Weir, 34 Chester Ave., Riverdale, Toronto, Ont.

GLADIOLUS

AMERICA (pink), the leading commercial variety—\$1.50 per 100—express charges collect—mailing size, \$1.20 prepaid. TACONIC, Groff's best pink, twice the price of America.

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Geraniums Geraniums

S. A. Nutt, John Doyle, Madame Barney, etc., 2½ inch pots, at \$3.50 per hundred.

Madam Sallerot at \$2.00 per hundred.

JOHN GOLBY, Florist

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GLADIOLI

GROFF'S HYBRIDS are now more largely grown in the United States and Canada, than any other strain. They are in good demand in AUSTRALASIA, and English orders have nearly exhausted some varieties.

AMERICA (Groff's 119) stands easily at the head of commercial varieties.

PEACE, WAR, DAWN, BLUE JAY, LAVANDULA, PEACHBLOW, and others, will soon be found in all gladioli lists.

We try most of the European kinds, as they come out, but so far have found very few, that are likely to secure a permanent place.

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**Neutral Arsenate
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is safe, economical, and sure because it contains the maximum amount of arsenic which will combine completely with the lead. Write for descriptive folders and prices, before buying elsewhere.

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CANADA PAINT CO.
LIMITED

PAINT-VARNISH AND DRY COLOR

MAKERS-LINSEED OIL CRUSHERS

MONTREAL-TORONTO-WINNIPEG-CALGARY-HALIFAX

OXIDE MINES-RED MILL QUEBEC

what has become to white people an intolerable situation.

The following officers were elected: President, W. C. Ricardo; vice-president, Thos. Abriel, Nakusp; executive committee, R. M. Palmer, James Rooke, Grand Falls; F. D. Nicholson, W. S. Foggo; new directors, J. J. Thornton, A. J. Clarke, J. Reckie, Mr. Bulmer.

British Columbia

At a conference held in January the fruit growers of British Columbia and the United Farmers of Alberta considered a proposition to patronize one another and to handle each other's products. The British Columbia fruit growers were represented by W. S. Foggo, of Vernon, and Mr. Abriel of Nakusp, and the Alberta farmers by President Tregillus and Secretary Woodbridge, of the United Farmers of Alberta, and E. J. Fream, vice-president of the growers' association.

It was proposed that the Fruit Growers' Association of British Columbia and the Farmers' Association of Alberta should cooperate in marketing produce, and when the Alberta farmer wanted fruit he should purchase it from the British Columbia growers, and when the fruit growers wanted hay or grain they should secure it from the Alberta farmer.

Mr. J. E. Armstrong, M.P. for East Lambton, purposes obtaining legislation making it a criminal offence for employees of express companies to damage fruit by rough handling. Mr. Armstrong also proposes to amend the Fruit Marks' Act so as to make fruit inspectors cargo inspectors also at shipping points.

PRIZE DAHLIA ROOTS

15 for one dollar by mail prepaid. 15 larger roots one dollar by express, not prepaid. Low rate to Horticultural Societies who give Dahlias as premiums.

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Roses Roses

Irish, Dutch and American. Hybrid Perpetual, Hybrid Teas and Climbing. Strong 2 year field-grown bushes that will bloom the first year—none better, none cheaper.

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Copy should be sent in early,

(See Publisher's Desk)

The Canadian Horticulturist

Vol. XXXVII

APRIL, 1914

No. 4

What Spray Mixtures Shall We Use?

Prof. L. Caesar, Provincial Entomologist, Guelph, Ont.

I HAVE been asked several times what spray mixtures I should recommend for fruit trees this coming season. The following in my opinion are the best:

For the dormant spray lime-sulphur, either commercial or home-made. If there is San Jose Scale in the orchard the commercial should not be used weaker than about one gallon diluted to eight, or a specific gravity reading on the hydrometer of 1.032 to 1.035. Weaker solutions often fail to give good results. If there is no scale, either Oyster Shell or San Jose, the wash may be diluted one gallon to eleven or twelve. On peaches this should be applied early before the buds have any more than begun to swell, but on apples or pears it may be applied any time, say from two or three weeks before the buds burst right up to the time they are bursting. On plums and cherries it is better postponed until a few days before the buds burst.

For the second application on apples and pears, which should be just before the blossoms begin to open,—the earliest varieties being sprayed first,—either lime-sulphur of the specific gravity strength of 1.010 or 1.009, which is equivalent to the commercial diluted not more than about one gallon to thirty, or bordeaux mixture four-four-forty, should be used as the fungicide, the latter being given the preference. To each forty gallons of either of these mixtures two or three pounds of paste arsenate of lead should be added as a poison.

To prevent apple scab this application should be done very thoroughly and as near the time advocated as possible. Many tend to overlook the importance of this spraying but after such a bad season for scab as we had last year, the greatest care should be taken this season.

The second application for plums and cherries should be in about a week after the blossoms have fallen or as soon as the fruit is well set. The same mixtures should be used as for apples but in the case of Japanese plums and possibly sweet cherries the lime-sulphur should be a little weaker.

If peaches receive a second application paste arsenate of lead alone, two or three pounds to forty gallons of water should be used when the fruits are formed, and about one-third of an inch in size. The object of this spray is to destroy the plum curculio in the peach.

The third application for apples and

pears should be, especially in the case of apples, as soon as from eighty to ninety per cent. of the blossoms have fallen, beginning with the earliest varieties. By this time the bees will have almost abandoned the trees and gone to other flowers. For this application it is not advisable to use bordeaux mixture for these fruits as it often causes russetting, instead I prefer lime-sulphur of the strength of about 1.008 specific gravity, which is equivalent to one gallon of the commercial diluted to from thirty-five to forty gallons. To every forty gallons of this diluted mixture two pounds of the paste arsenate of lead should be used. More than this is not necessary but does no harm. This is the great application for codling moth and apple scab, and the trees cannot be too thoroughly and promptly sprayed.

For cherries and plums the third application should be about two weeks after the second and the same fixtures as for the second may be used.

If the weather in about ten days after the third application is cold, dark and wet it will be absolutely necessary to

give a fourth application for apples and pears with the same mixtures as for the third, otherwise there will be an attack of apple scab, especially in varieties like Snow and McIntosh. If the weather, however, is dry and warm there is no need for this application except in the far eastern part of the province where it should always be given.

Cherries should receive a fourth application with the above mixture or bordeaux as soon as the fruit is off to prevent leaf spot. Plums that are inclined to rot should be sprayed as late as possible without danger of staining the fruit for market, either lime-sulphur or bordeaux being used. Peaches may receive an application of the so-called self-boiled lime-sulphur about one month after the blossoms fall to ward off brown rot. For method of making this see Spray Calendar or Bulletin 198.

Towards the end of August or in early September cold, wet weather sometimes requires an extra application to keep off late attacks of scab and sooty fungus on apples. I should use the same mixtures as for the third application.



A Power Sprayer Possessing Useful Features

This sprayer stops and starts up automatically by means of the pressure. No safety valve is required. The pump only pumps up the pressure when it stops itself.

In the foregoing it will be noticed that I have not included the new spray, Soluble Sulphur, or the powder forms of arsenate of lead. I think that Soluble Sulphur will prove satisfactory against San Jose Scale; it gave me good results on this pest last year, but even for this it would be better to test it further before strongly recommending it. As a summer wash I should advise every grower to be very careful in using it with arsenate of lead as a substitute for lime-sulphur and arsenate of lead. There were not many cases of burning last year from its use but I am not at all sure that under different weather conditions it may not cause serious injury. Therefore, my advice would be to use it only in an experimental way. I doubt very much whether it will prove to be nearly so safe as lime-sulphur or bordeaux mixture. It is a soda sulphur compound, not a lime-sulphur. Further study by chemists as to the reactions that take place when arsenate of lead is added to it may help us to supplement the knowledge we shall soon have obtained as to its safety and efficiency. I do not find that this wash

will kill aphids as claimed by many of its advocates.

As for the powdered forms of arsenate of lead, some experiments in the laboratory tend to show that it will be necessary to test these considerably before recommending them as a substitute for the paste form. The claim that they stay up in suspension much better than the paste form did not seem to be justified either when mixed alone in water or with lime-sulphur. Moreover the sticking qualities were seen to be not quite so good as those of the paste forms, though different makes differ in these respects. The particles are not quite so fine as in the paste. The greater convenience, however, in using, shipping and storing justifies their being used on a small scale by fruit growers.

In conclusion, I should mention that for grapes and potatoes bordeaux mixture should always be used instead of lime-sulphur. For potato beetles most men will get better results from paris green than arsenate of lead. Use from one to two pounds to every forty gallons of bordeaux.

Better Fruits at Less Cost *

Prof. H. A. Surface, Pennsylvania

The two points involved in this topic are, first, the production of fruits of higher quality, and second, the reduction of the cost of production.

Before proceeding far upon a discussion of quality, we should establish a definite basis by defining this much abused word. Perhaps we should go farther back and explain what quality is not. Therefore, we are prepared to say that quality does not mean huge size. Compare a Jonathan apple with a Wolf River, for example. Neither does this word mean the production of giants within any one variety. Let it be remembered that the scoring rules of the American Pomological Society properly provide for the scoring down of specimens of any variety if they are over size, or above a fair standard.

Quality is not red color. Compare Ben Davis and Grimes. Neither is it fine appearance alone. Compare a western boxed apple of any variety with a roughly-handled eastern grown Northern Spy, Baldwin, McIntosh, Tompkins, King, Grimes, Jonathan, or Stayman Winesap. Neither is quality produced by boxing what should be put into a barrel. Neither is it to be found in naturally low grade or mediocre varieties.

Quality in fruits is an epitome of those desirable features embraced in pleasing flavor; fair, uniform size for a certain variety; good, uniform color for the variety; freedom from injury by insects, or

by fungous diseases, and the absence of artificial injury, such as bruises.

Now comes the very important question: "Will one-tenth of our fruits measure up to this standard?" and the more important reply, that the average of the crop for America does not. Why not? Because there are more persons growing fruit trees who absolutely neglect them, producing nothing but culls and seconds, than there are who attempt to care for them and produce a first-grade product. We have shown in the demonstration orchards of the Bureau of Zoology of the Pennsylvania Department of Agriculture, trees bearing apples ninety-eight per cent. free from worms, which but two years ago produced fruit ninety-five per cent. wormy. The difference is due chiefly to negligence on the one hand, and care on the other.

With all orchardists the greatest problems involve the questions of how to improve quality, and how to reduce cost. To such men we venture to speak from personal experience in our own orchards which are, we believe, the largest in the Keystone State, and which produced, this year, carloads of fancy fruits that sold at record prices.

ESSENTIALS TO SUCCESS

To produce fruit of better quality, first select "fruit soil." This must be deep, loose, and originally fertile. This produces good growth and large fruits. The "abandoned farm" proposition for successful fruit growing is generally a mis-

take. Starved trees usually produce poor crops of small size fruit.

Select land with elevation for air drainage. Dead or stagnating air is as sure to foster diseases of trees and fruits as of human beings or live stock. Low lands cannot produce fruits of highest color, free from fungous injury. Actual elevation above sea level is not nearly as important as relative elevation, above immediate surroundings.

Plant the orchard in soil with good water drainage. A tree cannot thrive with wet feet any more than can a man. Wet soil means poor growth, diseased trees, and small, pale, insipid fruit. If your orchard has been planted in wet soil, nothing will pay better in the production of fruit of quality and quantity than to drain it well.

Plant good varieties, and top-work the older trees of poor varieties if they are vigorous enough. In an orchard there will be no figs from thistles, and no Rome Beauty or Stayman Winesap from Smith Cider or Ben Davis.

In any region plant only those varieties that do best there. It would be a mistake to reduce the quality of the ensuing product by planting the Spy in the Albemarle region, or the Rome Beauty in the Snow region, however excellent each of these may be when grown "at home."

Plant only healthy trees from reliable nurserymen, but pay no attention to the "old foggy" notion that hardy trees are to be obtained only from the north or young-bearing trees only from the south.

Plant at such distance between trees as to permit abundant growth without crowding, and also provide for the spreading of low broad tops, without that crowding and shading which must result in light-colored fungus-specked fruits.

Help to obtain color by so pruning as to grow low, open spreading tops. Top back old tall trees to spreading branches. Get sunshine and air to each fruit, if possible, to give color and flavor.

Obtain color by (a) growing in suitable soil, (b) at some elevation, (c) with potash and phosphoric acid fertilizers, (d) reducing the nitrogen so as to avoid too rank growth where greater color is wanted, (e) not cultivating too late in the season, and (f) not pushing too much leafy growth by severe dormant pruning, but (g) remove superfluous small growth by judicious midsummer pruning.

Strive for uniformity of color by adopting a definite, uniform system of pruning that will keep the tops open and spreading; avoid dense masses of foliage or such arrangement of branches as will close and become dense by weight of fruit; adopt a system of uniform feeding.

*Extract from an address delivered before the Niagara District Fruit Growers' Association



Orchard of W. Palmer, near Victoria, B. C., in 1903

The trees are such mere whips as to be practically indistinguishable.

Where growth is liable to be too rank, and thus reduce color, as it usual on low or damp ground, or where dormant pruning has been too severe, manuring too heavy, or cultivation too long continued, better color for any one season may be obtained by summer pruning.

SECURE PROPER SIZE

Obtain size by those methods that give strong leaf and twig growth, and by thinning; but, in so doing, avoid producing that extreme rankness of growth which detracts from color of fruit. Do

this by (a) securing a fertile soil, (b) by retaining moisture by mulching or by cultivation and cover crops, (c) by replacing removed fertility and organic matter by commercial fertilizers, manure and cover crops, especially the legumes, (d) by stimulating growth when needed by dormant pruning, and (e) by thinning early and vigorously, and (f) by keeping the leaves healthy through spraying with proper insecticides and fungicides. Healthy leaves mean large, healthy, late fruit.

Pears and Pear Culture

A. W. Cook, O.A.C., Guelph, Ont.

IF one were to listen to a fruit grower giving his experiences with twig or pear blight, the sad experiences that had spelled disaster, one would naturally be under the impression that there was not the least chance to make pear growing profitable. The writer remembers very clearly listening to such an experience. The grower said: "Why, do you know, the thing kills them in a night," and it does as far as their knowledge is concerned. The truth, however, is that pear blight can be controlled, and is being kept in check to-day. Those who contemplate growing pears should not start unless they do so with a thorough knowledge of this bacterial disease, and a strong determination to control it. If one does this, there is money to be made in pears.

The pear situation is taking on brighter prospects. In the past fifteen years pear growing has been a doubtful business for many an average grower, simply because of their neglect to give proper attention to the work. We do not hear of pear orchards being planted to such a large extent as some of the other fruits that are not nearly so popular with the consumer. This is on account of

there having been a very suspicious sentiment held against this industry because of a few negligent fruit growers. This condition is diminishing. Fruit growers have begun to awaken to the fact that there is money in pears when judicious care, systematic pruning and thinning, and the proper food elements are given to the producing tree.

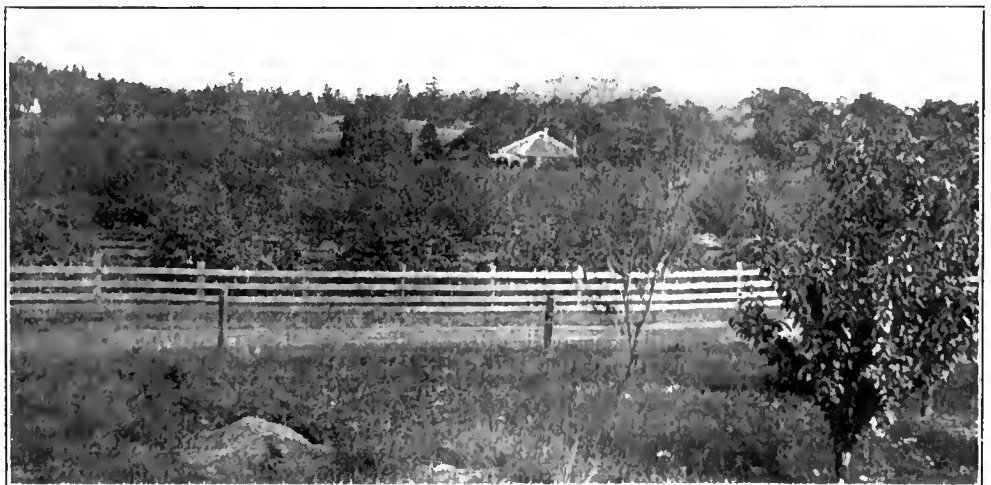
The pear is a fruit that will grow in a

large geographical area. In Ontario there is hardly a section in the older portion of the province where the pear will not thrive. I cannot vouch for the ability of this fruit to withstand the severe low temperature of the northern parts.

There is nothing to be gained by planting a large number of varieties of pears. The consumer should be encouraged to purchase nothing but the best, and the grower should strive to produce a high class article. There is a steadily growing demand for the very best, and it should be the ideal of every grower to produce this grade and place on sale this grade only. There is nothing to be gained by the man who tries to undersell a man who has a good uniform article, no matter what the competition may be. The best article will always command the very highest price, and sell first.

Plant just a few, well selected varieties, that are strong, hardy trees and which bear uniformly every year. The best to plant would include pears that would bear one after the other, so that all the crop would not have to be harvested at once. Among the varieties that are seemingly the best, judging from the experience of various growers, are such varieties as Bartlett, Kieffer, Anjou, Duchess, Bose and Clapp's Favorite.

Like many other lines of agriculture, the pear should be chosen to suit the market, location, and the demand from outside sources. Some markets have very little use for certain varieties, while for export or canning purposes there is a steady demand for such varieties as the Kieffer. For the city trade there is some demand for an early fruit, which would naturally be the Clapp's Favorite. If one wants a good all-round pear that is a universal favorite with the purchasing public and a profit producer for the grower, there is nothing like the Bartlett. It has one strong characteristic that distin-



The Orchard of Mr. W. Palmer in 1913

Note the difference in ten years in the growth of the trees.



Pruning in Orchard of T. W. Palmer, Victoria, B.C.

guishes it from all other varieties, that is its adaptability to soils and location. Its demands for soil conditions are few compared with those of some of the other varieties. If one were to plant Bartlett as their chief crop, then Keiffer, Duchess, Anjou and the Bosc for winter fruit, they would have a good combination.

The pear is not very exacting as to soil conditions. There is, however, one very

important point in selecting a location. Choose a soil that will produce a slow-growing tree. This is a very essential factor in pear growing. Neglect to attend to it has often spelled disaster for pear growers. The pear tree should be a slow growing tree. The pear tree that grows rapidly is very tender. This condition is conducive to pear blight. On the other hand, the slow, sturdy growing tree often wards off attacks of this disease, and is sure to put up a stronger fight for existence.

The pruning of the tree is another essential factor in the successful pear business. The trees should be headed low, with an open centre. Some growers make it a practice to cut back each year's growth after the tree has come into the bearing stage of life. By following out this method they argue that they can obtain the fruit near the centre of the tree. One must remember that in all pruning operations, where severe pruning is practiced, it encourages strong wood growth. This naturally increases the amount of labor each year for the pruning of the orchard. Some of the varieties, such as the Anjou and the Bosc, are spreading in their natural growth. If they are planted closer than twenty-three feet they are apt to crowd, which will necessitate unnecessary pruning. The other varieties are more upright in their growth and consequently can be put close together. The distance of planting is governed by the nature of the soil and variety.

A Last Season's Test of Soluble Sulphur

J. G. Mitchell, Clarksburg, Ont.

SOME seven years ago I was induced to experiment with what at that time was considered a new spray, lime sulphur. As soon as I heard of this spray, I felt confident that it should soon do away with the troublesome bordeaux mixture. The professors at Guelph said that it was not safe to use as a summer spray, and practically forbade its use, but the splendid results obtained with lime sulphur over the old spray were so pronounced that the following season it was strongly recommended by growers and professors, and became the standard as a fungicide.

However, growers have been asking and hoping that some more convenient way of using the sulphur spray would be devised and we now have this in the latest form called "Soluble Sulphur." In my opinion it is just as much superior to lime sulphur solution as the latter is to the old bordeaux spray.

In the way of convenience there is no comparison. I always used to dread the loading and unloading of the heavy six hundred pound barrels of lime sulphur, and the men would nearly go on strike

when asked to handle it. Last year I got the spraying done for about half what it cost the previous year. I used two barrels of the lime sulphur solution and soluble sulphur for the rest of the spraying. As soon as we used the first hundred pounds of soluble sulphur, I could see there was no use asking the men to go back to the old spray. We had absolutely no trouble with nozzles clogging and never had a stoppage from the time we commenced using soluble sulphur.

Of course I insisted on the spray tank being cleaned out every night, all the water being strained, and a screen kept over the feed pipe to the pump. We filled the spray tank about half full of water, then put in our soluble sulphur, eight to ten pounds to forty gallons. This was well agitated by the time the tank was filled. We put this spray on just as the buds were bursting, in fact on some trees the blossoms were nearly open. In the summer spray we used from one to two pounds to forty gallons of water, putting the soluble sulphur in when the spray tank was half full of water, and

adding arsenate of lead last, two and a half pounds to forty gallons. Doing it in this way there is absolutely no trouble. Where aphid appeared in our orchards we used nearly two pounds of soluble sulphur to forty gallons for summer spray, and only about one pound in orchards where there was no aphid. Scab and fungi were controlled perfectly in all our orchards. I do not consider it necessary to use the mixture stronger than one and a half pounds to forty gallons, except for aphid.

Our McIntosh Red apples were absolutely clean and beautifully colored; ninety-nine apples out of every hundred went into number one boxes. The Greenings were just as nice, having a lovely bright glossy appearance. If these varieties come out in this way there is no need to worry about others. We also had good results in fighting aphid, having practically no loss from this pest, while in 1912, when we used lime sulphur, our loss was well up to two thousand dollars.

It is now a recognized fact that soluble sulphur is bound to take the place of the old material. It is just as efficient as a fungicide, if not better, than lime sulphur, and is so much more convenient that every grower should be made thoroughly acquainted with it.

Varieties of Currants and Gooseberries*

L. B. Henry, B.S.A., Winona, Ont.

The best varieties of black currants are Naples, Champion, and Victoria. The Naples is a strong, upright, vigorous bush, healthy and very productive, and the berry is large, of good quality, and borne on short clusters. It is probably the most widely planted in Ontario.

The Champion is a very good variety. The bush does not become as large as the Naples, but it is productive and quite hardy. The fruit does not ripen uniformly, and is five days to a week later than the former variety. Victoria is vigorous and hardy, but from my experience is not as productive as Naples or Champion.

There are many varieties of red currants. A few of the best ones are Cherry, Fay, Prince Albert, Chataqua, Perfection, and Ruby Castle. The Cherry is the principal red currant grown in southern Ontario for commercial purposes. The berry is large and the bunch short and compact, and the bush very productive.

Fay's Prolific has been widely advertised as superior to the Cherry, but is very similar in fruit and productiveness, the bunch being a little longer, but loose towards the base.

The bush of the Prince Albert is a

*Extract from an address delivered at the last annual convention of the Ontario Fruit Growers' Association.

poor grower while young, but becomes more vigorous and productive with age. The berry is medium in size and very acid.

Chatauqua has the same fault as the Prince Albert, being a very slow grower when young, but very productive. The berry is large, light red, and the seeds are very large.

Perfection is a cross between White Grape and Fay's. The berry is very large, clusters are long and a beautiful bright red. Ripens with Fay's.

Raby Castle or Victoria is exceedingly productive, but is rather out of favor on account of its small size, larger currants having a preference on the market.

GOOSEBERRIES

People have been planting gooseberries extensively during the past few years, and at present prices they are profitable. Up to a few years ago the preference was for American varieties on account of their resistance to mildew, but recently, in the light of improved spraying methods, the English varieties have been largely planted. On the whole the latter sorts are much larger, but not of better quality.

There are innumerable varieties of English gooseberries, but only a few are grown commercially in Ontario, among the best being Industry, Lancashire Lad, Crown Bob, Keepsake, and Whitesmith. The Industry is a vigorous, upright grower and a heavy cropper. The berry is red when ripe, hairy, and has a pleasant, rich flavor. Lancashire Lad is not as strong a grower as Industry, nor as heavy a bearer. The berry is smooth and roundish-oblong, of medium size.

Crown Bob is another red berry favored by some, but we pulled ours all out, as they were poor growers and shed their leaves prematurely. The fruit is large, oblong, and hairy. The Keepsake is a large, straw-colored berry of excellent flavor, and can be pulled very early for green gooseberries. The Whitesmith, in my opinion, is the best of them all. It is very vigorous and an excellent bearer of large, oblong, smooth, greenish-white berries, the ribs of which are plainly marked.

There are practically only three American varieties that are worth planting commercially, namely, Pearl, Downing, and Smith's Improved. The Pearl is an exceedingly productive variety of good size and quality. It is as productive as Houghton, and larger than Downing. The Downing produces large, roundish, light green fruit which has distinct veins and a smooth skin. The bush is vigorous and productive. The Smith's Improved is a vigorous grower, and the berry is larger, oval, light green, and has a bloom. The flesh is moderately firm.

A Perennial Border at Small Cost

H.R.H., Que.

THE perennial border is a "thing of beauty" which is within the reach of every garden-maker, and yet, except in very large gardens tended by professional gardeners, very few successful ones are seen. Many amateurs shrink from undertaking a perennial bed for the same reasons which for many years caused me to confine my horticultural efforts to the cultivation of annuals, in spite of the fact that these require much more care and attention and reward one's best care but for a single season. These reasons are, firstly, the by no means trifling expense of establishing a well-filled bed of good perennial plants; and secondly, the mental vision of a semi-naked bit of garden forming an eyesore during the two or three years that must elapse before the plants grow to sufficient size to cover the ground and produce the abundance of bloom desired. As an amateur who has successfully overcome both these difficulties I should like to give others the benefit and encouragement of my experience.

Having decided that I would have a perennial border, and having likewise determined that the cost must not be great, I started operations in the fall, marking out my bed along the west side of my lot, a length of eighty feet, and making the bed eight feet wide. This area I had dug up and the soil thoroughly worked to a depth of three feet. A large load of well rotted manure was distributed over the surface and dug into the soil, then the bed was raked over

and made ready for the fall setting-in of plants. Spring planting, of course, is often practised.

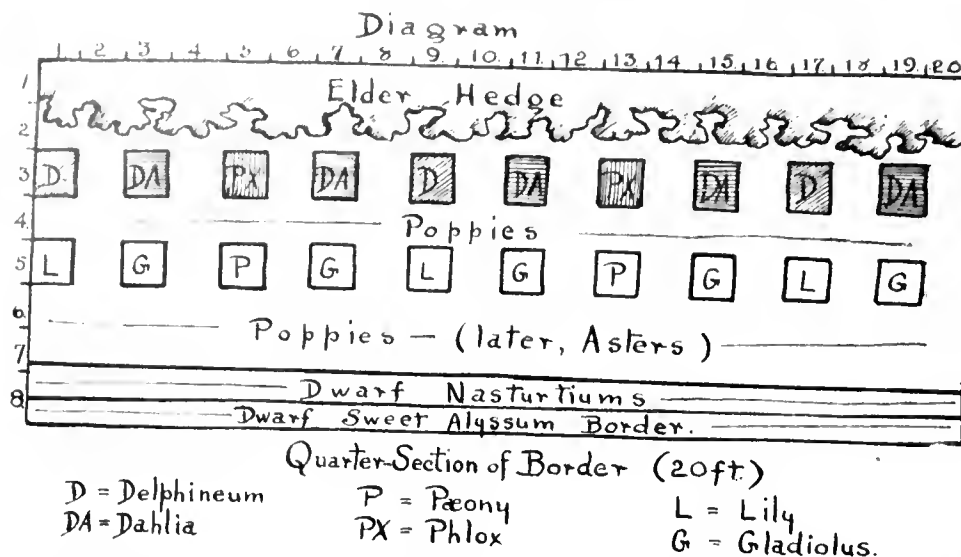
Behind the bed was an ugly wire fence separating my lot from that of my neighbor; to cover this completely, permanently and promptly was my first problem, and a serious one it proved, for to buy enough plants to set out a hedge eighty feet long involved too much expense, and the plants would take several years to grow to the height required to conceal the fence and form an adequate background for my border. After careful consideration I decided to plant a thick row of common elder which grows wild in large quantities in most parts of the country, and is extremely easy of cultivation. A man with a cart dug, hauled and planted, with my supervision and assistance, enough thrifty young bushes to line the entire fence; every single root grew and flourished, and, the following season, formed a complete screen of its own peculiarly effective, light green foliage, surmounted with white blossoms and later with clusters of red berries. The result has given me cause for much self-congratulation. By the time my background was established, the perennial roots and plants I had ordered from the seedsmen had arrived, and these were duly set out in their allotted positions, as shown in the diagram. The supply was modest, not to say meagre, considering the extent of the bed. It consisted of:

Ten large-sized delphinium roots, ten



A Veteran Amateur Gardener: Mr. J. G. Graham, St. Thomas, Ont.

Mr. Graham was awarded first prize last year for his vegetable garden, in a contest conducted by the St. Thomas Horticultural Society.



paeonies, ten phloxes, ten lilies, twenty dahlias, and twenty gladiolus bulbs.

The gladioli and dahlias were saved for spring planting; the rest were planted immediately and, the fall work being now completed, I staked, labelled, and mulched the various plants in preparation for their winter rest.

Early in April the mulching was removed; every one of my plants had survived the winter and sent up fine strong shoots. I had the bed covered once more with a layer of good manure and dug it in thoroughly, being careful not to disturb the plants, after which I worked and pulverized the top soil and smoothed the surface ready for planting. The last week in April I put the gladioli bulbs and dahlia tubers into the ground and on the first of May I planted quantities of poppy seed, the pompon variety, just scattering it and raking it lightly into the ground, between and around the perennials and in a solid strip two feet wide in front of them. It was a risk planting poppies so early in this climate, but I had plenty of seed saved from my own garden the previous year and could replant if the frost cut down the first seedlings. Fortunately they were spared, and I consequently had poppies in bloom nearly a fortnight earlier than usual.

In front of the poppies I planted a single, perfectly straight row of dwarf nasturtiums, and at the edge of the bed as a border I set out plants of dwarf sweet alyssum. These latter I had planted early in March in the house and later transferred to the hotbed so that at the time of setting out they were already starting to bloom and kept right on without setback, making a solid white border from the middle of May until after the heavy fall frosts had killed every other flower in the garden.

By the middle of May, when the poppies were up, the bed was well covered with green; besides the alyssum, a few paeonies were in blossom, the delphin-

iums were sending up promising flower spikes and the border began to be attractive to the eye. It was quite contrary to all rules and to my better judgment to allow the paeonies and delphiniums to bloom the first year after setting out, but it was very gratifying to see something of what was coming, and served to encourage my efforts.

The real show began about the middle of June when the pompon poppies came into bloom, and for nearly three weeks they were one glorious profusion of beautiful paeony-like flowers forming one of the most magnificent masses of color that I have ever seen, and that, too, at a time of the year which, in this part of the country, is an "off season" in the flower garden. Earlier we depend upon the paeonies, delphiniums, and spring-flowering bulbs for massed color effects; later we have phlox, asters, nasturtiums, dahlias and a wealth of other heavy bloomers, but in between are a couple of weeks when the poppies fill a felt want and are almost alone.

As soon as the glory of the poppy-bed began to show signs of departing, and the plants began to yellow at the base, although many were still in blossom, I ruthlessly rooted up every poppy plant, worked a little more fertilizer into the soil and set out in their place the asters which I had planted in the house early in March, cherished in the hotbed, and finally potted off and plunged into a cold frame to await their turn in the border. By this time, the first of July, the plants were already branching freely in preparation for the flowering season, and, receiving no setback from careful transplanting, they were soon in bloom, and gave abundance of beautiful flowers from mid-July till killed by severe frosts in the late fall. They were of the Ostrich Plume variety which, to my mind, are the most satisfactory where a long-continued, showy mass of bloom is desired—I have counted forty to sixty good flowers on a single plant.

In the meantime the dahlias, phlox, gladioli, and lilies grew and blossomed, making a very fair show indeed for the first year's planting, while the dwarf nasturtiums, according to their wont, almost obscured their own foliage completely with their wealth of blossom, throughout the entire season.

At no time from May to late October did my border fail to show abundant color. A study of the accompanying diagram will show how, by careful planning and taking into account the habit of growth of each variety the plants were placed quite close to one another without, in the least, interfering with one another above ground or crowding each other for root room. Of course, care should always be taken to see that taller-growing sorts be placed behind those of smaller growth so as not to obscure them, also that deep-rooted plants be alternated with those requiring little or shallow root room; finally one should plan to have plants flowering at the same season to harmonize in color so as not to "kill" one another. For that reason I have not yet ventured to introduce into my border the gorgeous oriental poppy which I have known to ruin many otherwise charming borders of more delicately tinted flowers.

SUCCESSION OF BLOOM

The following table will show the succession of bloom: Late May and June, delphineums, paeonies, alyssum, poppies; July, nasturtiums, dahlias, alyssum, gladioli, asters; August, asters, alyssum, elder hedge, lilies, dahlias, nasturtiums; September and October, asters, alyssum, nasturtiums, dahlias, phlox.

Now to consider the cost of that eighty-foot bed: Two loads manure, five dollars; digging of ground in fall, two dollars fifty cents; hired help on elder hedge, two dollars; ten delphineum plants, one dollar twenty-five cents; ten phlox plants, one dollar fifty cents; ten paeony plants, two dollars fifty cents; ten lilies, one dollar; twenty gladiolus bulbs, one dollar fifty cents; twenty dahlia tubers, three dollars fifty cents; seeds, one dollar; total, twenty-one dollars seventy-five cents.

Thus at the small initial cost of twenty-one dollars seventy-five cents (which could have been even more reduced had I been willing to wait a year or two and raised some of the plants from seed) I established an entirely satisfactory perennial bed eighty feet by eight feet, which made a splendid showing from the very first year of planting, and which has greatly increased in beauty and value during the two years that have passed since it was planted.

In the meantime, in a sheltered, sunny corner of the kitchen garden, I establish-

ed a little nursery, out of which I got more enjoyment to the square inch than from any other spot on the place. Here I raised rows upon rows of thrifty perennial plantlets, delphiniums, shasta daisies, perennial chrysanthemums, Canterbury bells, gypsophila (baby's breath), foxgloves, and many others, which, as

they became large enough, I transplanted to the perennial bed, so that now, after three years, I have my border filled to overflowing, and could do away entirely with the annuals, although I still reserve a strip in front of the bed for the gorgeous, annual display of poppies, succeeded by an equally beautiful

display of asters, and I still outline the border with the staunch alyssum. The result every season is a bed which is the object of interest and admiration to every passerby, as well as the unfailing source of supply for cut flowers throughout the summer, and so a joy also even to my more distant friends.

Orchids: the Goddesses of the Flower Families

F. E. Buck, C.E.F., Ottawa, Ont.

AL.D. J. A. ELLIS, M.L.A., of Ottawa, is one of the very few men in Canada who has grown orchids successfully. As an amateur who has grown them for many years he speaks appreciatively of the rewards they have given him.

On the occasion a short time ago of a visit to his home to see his plants, I asked him if he did not experience a good deal of pleasure in being able to grow the flowers of a millionaire on the income of an ordinary man. To this he replied that the flowers which could be grown with the very minimum of care and with a maximum of results, were orchids. He added, of course, that this is provided one does not attempt the high temperature section, or some of the expensive varieties which are often less beautiful than those of reasonable price.

"As a matter of fact," said Mr. Ellis, "I haven't spent a cent on orchids for the past five years. Some of the plants I have to-day are those I began with many years ago. Of course they have increased, as most orchids do, until to-day the increase of some has been perhaps fifty-fold."

Mr. Ellis took me into several rooms of the house where orchids were used for table decorations, and similar purposes, instead of palms or ferns. He remarked about one fine flowering plant that "it had been brought out of the greenhouse when it started to bloom three weeks ago, and was good for another month, when another one from the greenhouse would take its place." Varieties which flower in winter are his choice, because, as he says, "in the summer there are plenty of flowers in the garden which can be used as cut flowers in the house."

WHY ORCHIDS

Orchids are seldom grown. Most people think that they cannot be grown by the amateur, or that they are the flowers of the millionaire. Such opinions in some cases are well founded, although only in some cases. The experience of Mr. Ellis and others who have grown them, refute such an idea. Actually there is a strong case in favor of the orchid as a plant for home use, and especially for the winter season. The case is supported by the following facts:

First: Orchids require a minimum of care and attention.

Second: The expense of growing orchids is not prohibitive, and after one has started, less than that of other plants.

Third: As suitable house plants, wonderful in their beauty of coloring and charm of form, they are unsurpassed.

WHY EXPENSIVE

The varieties which the amateur should attempt to grow are not expensive, but rare varieties fetch sums which only a millionaire could dream of giving for them. Such varieties are bought on the same basis as curios are bought, to add to priceless collections. Some few years ago I was visiting a commercial establishment which has a fine collection of orchids, and in discussing prices with the manager I was told this: That a short time before his firm made a purchase of several hundred bulbs, paying, I think, on the average about a dollar apiece for them. In this collection were one or two rare plants. About the time they were in bloom another orchid specialist visited this collection and asked to be given a price on two of the rare plants. One

was quoted to him at seventy-five dollars, and the other, a very beautiful plant, at one hundred and fifty dollars. He bought them at these prices and a few months later the one hundred and fifty dollar plant was shown by him at a world-famed exhibition where it took the first prize, and was then sold to some admiring rich man for five hundred dollars. An incident like this explains high prices, but the amateur is not to be frightened by such incidents, and they should not keep him from trying his hand at a most interesting, even if sometimes a rich man's hobby.

There are three essentials to success in growing orchids. Should you be able to supply these essentials try a few orchids.

First: The greenhouse, or that part of it set aside for the orchids, must always be heated to a temperature ranging from 55 degrees F. to 70 degrees F. It would prove fatal to the plants if it fell below 45 degrees F. We shall see why, later.

Second: Proper ventilation must be provided. But it must be provided so



The Vine, Clematis Paniculata, Growing on the Residence of Mr. Herman Simmers, Toronto, Ont.

This is an easy growing, hardy, free flowering, fragrant climber. The vine on the verandah is a Clematis Virginiana, a rapid growing, very hardy, native variety of Clematis. It is not as nice a vine nor has it as fine foliage as the Paniculata.



Lady's Slipper or Showy Orchid

that the cold air of winter is warmed before it reaches the plants.

Third: A method of watering must be followed which is not too far removed from Nature's method of supplying water to these plants.

As one writer says, "common sense" is necessary for success in growing orchids. And what common sense does is to recognize that orchids are wonderful and "to be desired" plants, which can be grown quite easily if we provide for them a few simple conditions. In other words as Mr. Ellis says, we must appreciate the fact that the habitat from which they come is quite different to what it is in the case of most flowers.

TREAT ORCHIDS REASONABLY

Orchids come from damp, swampy places, where the air is humid, the temperature never cold, and the soil a particular type. They grow on dead trees and the like,—in many cases at least, and their roots never feed in ordinary soil. In practice we find that peat will answer as the best material in which they will thrive. With regard to water, they like it with the chill off, in fact they must have it so, they can't stand the cold bath. And then, if a nice warm balmy atmosphere is supplied they will blossom as if they felt all the better for the change. In fact they like to be tamed if they are not poorly treated, or "herded with the common herd of plants." They soon forget their native haunts, especially those varieties which have been reared under strange conditions. Many of the children of the older races, the hybrids, are most beautiful, in fact so beautiful that one feels like acknowledging that perhaps they are the very angels and goddesses of the flower world.

POINTS IN ORCHID CULTURE

Orchids need very little attention.

Orchids are generally free from insects.

Orchids need re-potting only about once in three years.

Orchids do not need to be trimmed up, or fussed over like other plants.

Orchids have healthy and fairly attractive leaves when not in bloom.

"Orchids," says Mr. Ellis, "are easier to grow than fuchsias, begonias or geraniums.

ESSENTIALS TO SUCCESS

A correct temperature; from fifty-five to seventy degrees in summer, and from forty-five to seventy-five degrees in winter.

Shade from the strong rays of the summer sun.

Abundant moisture, especially in summer, in winter, watering with tepid water twice or three times a week is sufficient.

Abundant fresh air secured by a good ventilation system.

When these four conditions are provided for orchids, a general condition approximating that which exists in their native haunts is secured. Success is then practically certain.

Never take a chance during cold snaps in winter. Watch the temperature. Any temperature below forty-five degrees is fatal, even for one night.

For watering, Mr. Ellis has an attachment to the kitchen heater, similar to those used in bathrooms. He warns the water by the turn of a tap. This is an ideal plan.

The floor, or part of the floor, of the greenhouse should be earth. This will keep the air humid.

Pots, cribs, or baskets may be used in which to grow orchids. If pots are used they must be well drained.

Soil is seldom used; in its stead, peat, moss, or fern-fibre are used.

Excessive heat and drought are both to be carefully avoided.

The night temperature for orchids should be about ten degrees lower than the day temperature.

VARIETIES FOR THE BEGINNER

In the matter of varieties, Mr. Ellis grows only those which will bloom in winter. Of these he has tried about fifty different varieties. The following are recommended by him:

First best six—*Cattleya Trianae* or *Labiata*, *Cattleya Schroderae*, *Oncidium variocosum Rogersii*, *Odontoglossum grande*, *Laelia Anceps*, *Cypripedium insignis*.

Second best six—*Cypripedium nitens*, *Laelia autumnale*, *Oncidium Forbesii*, *Vanda coerulea*, *Lycaste Skinneri*, *Laelia praestans*.

To enrich the lawn and cause a more luxuriant growth, there is nothing better than raw bone meal evenly strewn over the surface at the rate of ten pounds to three hundred square feet. Or one of the many patent lawn enrichers may be used in the same manner. A brisk going over with a sharp steel rake should follow application of enricher or bone.

Planting Roses and the Time

Jas M. Bryson, Toronto, Ont.

The planting of roses should always be deferred until the soil is in a proper condition to receive the plants. There is no greater mistake than planting roses in wet soil. The soil to be in proper condition for planting should be dry and free. The best time to plant roses which have been raised or grown in Canada, is the last week in October, and for imported roses the second week in April. With good culture roses may be planted safely up till the middle of June. Care must be taken not to plant too deeply. By placing the union or callus three inches below ground you will be about right. For dwarf roses see that the roots do not cross or coil around. This is most important. Be particular also to see that no manure comes in contact with the roots directly, and always firm the soil by treading it down with the feet, but leave a rough surface.

The best soil is a strong holding argillaceous loam, so tenacious as to almost touch clay in some of its more inviting forms. Not a few soils that are called clay when wet, turn into strong loam when dry. Though such loams are on the whole most favorable for the perfect cultivation of roses it must not be asserted that they cannot be grown on others. I have seen prize roses grown on soil so light that it could be driven and drifted like sand during a protracted drought, and also on sheer peat. The natural quality of rose soils is often of less vital importance than might at first sight appear, inasmuch as in many cases the soil is the mere dish, shell or basin to hold the materials which are freely given to roses to feed upon. While saying this much, so that nobody may despair of growing fair roses with soils such as they have, or can make with the materials within reach, it should be added that no loam can be too good or too rich for roses. In selecting a site for a rose border or rose garden, the cultivator should endeavor to marry the three S's, namely, sun, shade and shelter to air.

Making Garden Paths

John Gall, Inglewood

With the necessary materials at hand, it is a simple matter to make a firm, sound pathway anywhere. The first thing to be done is to peg out the site at the width desired, and the next to dig out a V-shaped trench along the whole length. Then, if the soil is of a light and porous description, it is only necessary to place a quantity of rubble, composed of broken bricks and large clinkers in the bottom, then a thickness of coarse gravel, and finally enough fine binding gravel to bring the surface up to the required height when well rolled

down. Should the soil be heavy, or the situation damp, it is necessary to put in a two or three inch drain pipe along the bottom of the trench. The joints of the pipes must be covered with a turf, grass side downward, then cover with the rubble, coarse and fine gravel as before.

A foot is about deep enough to dig the trench. These directions serve for all ordinary purposes, remembering, of course, wherever a drain-pipe is put in,

that it must have a slight slope in the direction of the outlet. Paths may be surfaced with gravel, ashes, flagstones, concrete or cement. Where gravel or ashes are employed, the middle of the path must be slightly higher than the sides, and it is most important where these are used, that the rubble and coarse gravel is well pounded before the fine gravel is put on. The gravel should be about three inches deep.

two borders full of plants, not breaking it up by numerous meaningless small beds.

Another important feature of your home improvement is to make your place attractive in winter. This can be done by having a few evergreens grouped in threes or singly. The contrasting effect of evergreens with the winter snow is fine. Evergreens give an air of comfort to the place by their appearance. If you have a steep terrace or bold bank its stiffness and barrenness is removed by planting a few dwarf evergreens starting near the bottom and gradually working your way diagonally across till you come to the top, dotting an evergreen here and there, just as you may notice them growing up some farm hillside. For this purpose the junipers are just the thing or a few shrubs may be sparingly planted for the same purpose.

In the way of manuring, dividing and keeping the weeds down you may have by a judicious selection, plenty of flowers and foliage the season through.

The earliest flowering plants should always be planted in the most conspicuous place. Such plants as the Bleeding Heart follow any bed you may have of tulips or hyacinths. On the edge of the border or bed in front have a mass of pansies and forget-me-not, or a clump of daisies are pleasant to see. In the shady place caused by a fence or the side of the house, close to a walk, have a clump of lily-of-the-valley and some ferns. Two or more paeonies in variety are indispensable. Their bold character of foliage and flower make them fine lawn plants, either singly or in a group.

Plans for This Year's Garden

J. McPherson Ross, Toronto, Ont.

WHEN planning the improvement of your home surroundings, have in mind some special feature of ornamentation, either by trees, shrubs, or flowers, different from your neighbors within the bounds of good taste. See in your mind's eye your house as a picture and your grounds surrounding as the frame to set it off.

When an artist paints a picture he has first the story to tell. Then with the aid of his canvas, paints and brushes and technical skill he tells the story as best he can.

The gardener gives us the real picture. True he has the real sky above him and real nature and things to work with. Then on the canvass of his ground he spreads the green grass, either by sodding or seeding it. With real plants he produces real flowers. Real trees grace his lawn, and real roses climb up his cottage window.

To have a nice front lawn it should be properly laid out, and to do this let me point a few rules to observe: Never plant anything in front that will obstruct the view from the window to the street, or obstruct the view from the street to the house. In other words, plant your garden so that it will look nice from the house or the street.

Have as much grass as you can. Nothing looks better than a nice, green, neatly-kept lawn. Place your walk as much to the side of your lot as possible and on that side which you use when you leave your house going or returning from business. Leave enough room on the narrowest side to allow a shrub or group of three to grow in. This enables you to have a larger lawn in front of the house curving your walk gracefully to the steps, and to branch the walk to a side path to suit children and the butcher and baker for kitchen demands.

If your ground is low raise it up so as not to have water standing on it after the spring thaws or heavy rains. Nothing is more disagreeable than to have to wade through water on the paths.

If your plot is large enough to have a border let it commence ten or fifteen feet back from the front fence, running back

with dividing fence as far as you wish and desire to plant. If your neighbor and you are good friends, get him to start his border opposite yours having both front outlines run back irregularly, that is never a straight line but vary it as nature does planting your tallest shrubs at the back, the tallest perennials also, tapering down to the front, finishing with some plant that serves as an edging, such as sweet alyssum or sea thrift, pinks.

Start your border on the other side on the large side of the lawn in front of your house by the steps, and carry it around to the fence and down towards the street. Never put a bed in the centre of your lot or lawn as it spoils the effect, and breaks it up. A bed of geraniums in the centre of your lawn looks like a scarlet patch on a green coat.

Aim to make your lawn or grounds look as large as possible and also at simplicity of design, so as to have a grander effect of masses of growth in flowers and shrubs. This is done by having one or



The First Prize Lawn of Ex-Mayor Guest, St. Thomas, Ont.

For tall herbaceous plants we select larkspur, rudbeckia, Bostonia, phlox, campanula, fox glove and hollyhock. For shorter growing kinds we have columbine, oriental poppy, dwarf phlox, iris in variety, achillea and chrysanthemums.

In our garden we must find room for annuals such as asters, petunias, nasturtiums, stocks, antirrhums and Indian pinks. For a small circular bed at the end of the walk nothing looks better than one of pink geraniums massed and margined with a circle of sweet alyssum. If our space allows and we have room for one of a more ambitious nature let the centre be a castor oil plant encircled by a row of canna, next a row of coleus Verschappildint of Perilla

Nankinm, a row of scarlet geraniums, margined by a circle of suitable edging. A little study and observation combined with experience gives anyone interested the necessary knowledge to make any number of combinations.

Climbing plants have an important part in our decorative work. For brick houses or stone the Boston ivy is unsurpassed, but for training up on a verandah or trellises roses are first, and then clematis.

For annuals, the most valuable would be cobea scandens, morning glory, dolichos and scarlet runner.

Make it a point to have some floral effect by one flower to dominate your garden.

Home Culture of Chrysanthemums

W. Hunt, Ontario Agricultural College, Guelph

(Continued from March issue.)

WHEN the roots of chrysanthemums are about an inch in length, which should be in about five or six weeks from the time they were set, they can be potted off singly into small two and a half or three inch pots,



Chrysanthemum Cuttings, Rooted and Not Rooted

or set about one and one-half inches apart in shallow boxes. Use the same kind of soil and treatment as recommended for the root divisions, and re-pot them into larger pots as soon as the roots fill the smaller ones. About the end of June or early in July the plants may be potted into quite large seven or eight inch pots. The pots may be sunk to the rim out of doors in the open garden early in June. Place a piece of slate or stone, or an inch or two in depth of coal ashes underneath the pots outside to keep out earth worms and prevent the roots from getting through the bottom. The plants may be planted out of the pots in the open ground instead of potting them. Give the plants plenty of water at the roots and keep the tops

sprayed every day with clear or soapy water, in hot weather, as well as with insecticides.

Plants can be raised from seed that will flower the first season if the seed is sown early in February indoors. The young seedlings should be transplanted singly into small pots, or be set about two inches apart in shallow boxes in good potting soil when four or five small leaves have developed. Grow these on indoors until about the middle of May, when they may be stood out of doors to harden, and be planted out in the open garden, or be potted into large pots, and the pots sunk out in the garden, and treated as before described for plants, from divisions and cuttings. The summer care and insect enemies of chrysanthemums will be described in a later issue.

During the winter place the plants in a sunny window away from fire heat as much as possible to flower. A temperature of fifty to fifty-five degrees will suit them. After the plants are through flowering, cut the tops down and place the plants in a cool window, tempera-



Young Chrysanthemum Plant Before and After "Pinching" or "Topping"



Section of Plant Before Dividing

ture forty to forty-five degrees, or they may be put in a light cellar or basement in about the same temperature. Keep the soil moist, not too wet, all winter. Bring the plants out in the spring early in March, and start them into growth on the window before dividing them up or taking cuttings.

White—Early Snow, Smith's Advance, and White Cloud.

Yellow—Golden Glow, Golden Gate, and Golden Chadwick.

Pink—Glory of Pacific, Pacific Supreme, and Uganda. Nellie Pockett,



Section of Plant After Dividing

cream color; Brutus, orange red; and Black Hawk, crimson, are other good varieties.

Good pompon (small flowering) varieties are: Rose Travenna and Alena, pink; Snowdrop, Anna and Nic, white; Klondike, yellow; Mme. Beau, bronzy old gold; Julia Lagravere, red; Lady-smith, pink.

Liquid solutions of manure water should be given chrysanthemum plants as soon as the buds show, or earlier if necessary. It is best to discontinue the liquid manure as soon as the flowers show color. Clay's Fertilizer or Bonora, sold at seed stores, are good commercial fertilizers. One-fourth part of a pail of cow manure and about one pound of chicken manure put in a pail, the pail filled up with water, well stirred, and

then allowed to settle, makes an ideal liquid fertilizer for all pot or garden plants out of doors, if diluted with an equal quantity of water before using. Half a pint of the diluted solution once a week or so would be beneficial to the plants before the blossoms show. The

commercial fertilizers named are best for indoor use for sanitary reasons. Half an ounce of nitrate of soda dissolved in a gallon of water is a good substitute fertilizer. About half a pint of this once every week or ten days will benefit the plants.

the soil. The tops and the old dry black corms, under the corm to be planted, should be cleaned off just the same as with gladiolus before planting. The culture of the Montbretia is very similar to the culture of the gladiolus.

It is best to plant Montbretias in clumps or groups about twelve to fifteen corms in a group. Set the corms about three inches apart and cover them with about three inches of soil. They will grow in any good garden soil, but succeed best in a fairly rich, loamy soil. Like the gladioli and other bulbs, fresh strawy manure for a fertilizer should not be used when planting them. No manure or fertilizer should come in direct contact with the corms when planted. I have often wondered that more of these pretty little bulbs with their quaint, oddly colored flowers are not oftener seen in our gardens. Most of our seedsmen catalogue them for sale. Plant a few of them as early as possible this spring.

Short Hints on Planting

Wm. Hunt, O.A.C., Guelph, Ont.

IN transplanting fibrous rooted, or indeed almost any perennial plants, the height and density of habit are the main points to consider as to the distance apart. A good general rule is to have the very tall plants at least two or three feet from any other plant. By setting the taller plants four or five feet apart toward the back or centre of the border, plants of medium height could then be planted between them. The same rule could be followed to some extent with the medium height plants. Plants of medium height should be planted mainly toward the middle of the border. One or two feet apart is a good distance apart for these last. Planted two or three feet apart would allow of dwarf plants and clumps of spring flowering bulbs, such as tulips, narcissus being planted between them. These last named bulbs should, of course, be planted in the fall.

A plant or two of perennial larkspur or *Anchusa Italica* dotted here and there about twenty or thirty feet apart may be planted in about the centre of the border. These plants stand out in conspicuous relief. The plants used for this purpose should be of a fairly compact habit, the kinds named are well suited for this purpose. The dwarf perennials should be planted about a foot apart. The clump or group system of planting is best for perennials. I consider spring the best time for transplanting fibrous-rooted perennials, as the spring flowering bulbs are all showing, and there is not so much danger of disturbing them as there is by planting in the fall. Otherwise, early fall planting for all perennials is desirable.

MONTBRETIAS

The pretty, late-flowering plants known as Montbretias belong to the bulbous-rooted class. To be correct, they are produced from corms similar to the crocus and gladiolus. Indeed, the Montbretias might very justly be called "miniature gladiolus," being much like the last named flower, not only in the form of growth and the reproduction of their corms, but also from the habit of their growth and the form of their flowers. In the color of their flowers, however, there is not found the wide range found in the gladioli, the dominant colors and shades of Montbretias being mainly of a yellow or brown, or shades of these colors. They are, however, very

pretty and attractive. A vase of them with their wavy, graceful, dark green foliage interspersed with their oddly-shaped trumpet-like blossoms of all shades of orange, brown and bronze, make them very acceptable for cut floral decorations toward the end of summer, when flowers are sometimes scarce in the garden.

The best time to plant the corms is very late in the fall or very early in the spring, just as soon in spring as they can be got into the ground. The corms (or bulbs) cannot sometimes be obtained early enough in the fall to plant, as the plants are often green and vigorous and in flower until winter sets in for good. If the corms can be obtained, they may be planted successfully in November. They are not quite as hardy as tulips and narcissus, therefore it is best to protect them during winter by placing over them four or five inches of strawy manure. Most of the varieties will come through the winter all right treated in this way. Some growers make a point of digging the corms very late in fall after the tops have been frozen and winter them over in a cool, fairly dry cellar in a temperature of about forty degrees Fahrenheit. They should not be kept in a hot, dry cellar during winter. I have found it a good plan to lay the corms in a shallow box and cover them with an inch or two of dry sand or dry sandy soil, leaving the tops on and standing out from

Rose Culture

By an Amateur

Whatever shade you have for your roses must not be provided by trees. The roots of these rob the soil and their leaves prevent a free circulation of air. Close proximity to buildings and fences should be avoided, as the reflection of the sun's rays upon the flowers causes them to wither very quickly, and in winter the snow is liable to drift too deeply over the plants, breaking them down.

LOCATION OF THE BED

The location of the rose bed should be on ground thoroughly drained either naturally or artificially. The matter of soil is of less importance than location, as roses will grow in almost any soil short of pure sand. You will, however, give them the best sort you have or can procure.



A Prize Veranda in a Competition Conducted Last Year by the Ottawa Horticultural Society

Residence of Mrs. D. T. MacLaurin

Progressive Vegetable Culture*

S. C. Johnston, B.S.A.

PROGRESSIVE vegetable growers are looking for new and improved ideas regarding the growing of their products, and any method by which they can realize increased returns from their gardens interests them. The following methods and appliances are being adopted by vegetable men in parts of the United States, and may prove of interest and value to Ontario vegetable growers.

From the greenhouse vegetable growers' standpoint let me say that sterilization of soil is being extensively carried on by practically all progressive growers. In some cases steam boilers are purchased for the sole purpose of treating the soil. Some are using the inverted pan method, others the spike method, and one progressive grower in Grand Rapids (Mr. Yonkers) has made a sterilizing apparatus which amounts to putting a modified skimmer irrigation line under the soil to a depth of four to six inches and forcing live steam through the nozzles. He claims to have had better success from this method than from any other employed. Sterilization will give results. This has been proved by many growers on the other side, and many make an annual practice of treating all soil in the greenhouse.

Some growers make a point of growing only one or two crops and making a specialty of those particular ones and improving as they can. They select their own seed and do their own cross-breeding and aim to supply the market with the best possible varieties of that particular vegetable that can be found. Some make a specialty of cucumbers, others tomatoes, and others lettuce, and during their season the quality of the produce from these specialists can be seen on the markets realizing ten and fifteen per cent. more than that of their competitors. Improved varieties are due largely to selection of seed. These men do not depend on seedsmen for their seed, but at different times go through the growing crops themselves and pick out the best plants and select their specimens from these. The progressive grower knows what his market demands, and the main point on his score card is probably his selection of specimens for seed.

CUCUMBER GROWING

The large greenhouse plants around Toledo are devoted to extensive growing of cucumbers, and they have adopted a device for training their cucumbers on a stake one-half inch by one inch by seven feet in length. It is fitted with a simple nail lock, one nail being driven through, and another, somewhat longer, being

driven through the stake and bent so that it forms a lock with the small nail. The bottom of the stake is either driven into the ground beside the plant or is fitted with a small resting shoe, and stands on top of the ground beside the plant. The tops are let into a piece of ribbon wire which is permanently stretched through the houses. This wire holds the cucumbers solidly in place and excellent results are given.

Skinner irrigation cannot be spoken of too much. Growers in all sections are beginning to use this system on gardens from an acre to forty acres in size with remarkable results. Satisfied growers are everywhere the best answer to any question regarding Skinner irrigation.

It is the custom of some vegetable growers to hold their manure before applying it to the greenhouse. They have told me that they find it worth considerably more to them. Some of them have built concrete manure pits. They pile the manure to a depth of three or four feet in these pits and turn the water on to the manure at intervals to keep down the fire fanging. Some turn the manure at different times. These pits are built with concrete walls about one foot thick and eighteen inches to two feet high. As a rule paving brick is laid in an inch or so of concrete for the bottom. They are higher at the ends than at the centre and are made wide enough to permit hauling manure right into them.

Several growers are now making an annual practice of holding their manure four or five months in this way. They advocate this method especially for the manure that is to go into the greenhouse. The liquid manure is soaked up by the coarse manure and its full benefit is thus gained. Some growers make pits for this manure only and build it entirely of concrete and do not drive in them, simply throwing the manure into a pile in them and watering as they see fit.

A New York firm has a patented celery bleacher which is being tried out by several growers. It consists of a strip of material very similar to some of the common ready roofings, twelve inches wide, and in rolls of one hundred feet in length. This is placed around the celery instead of boards or paper, and is held together by means of U-shaped wire holders, which fit over both sides of the paper. This method is not more than a year or so old and it has been tried with some degree of success by some growers.

STAKING OF TOMATOES

Possibly the staking of tomatoes is being tried out more than any other method by progressive vegetable growers. Fully fifty per cent. of the growers visited last summer were either experi-

menting with it or were beyond that stage and carrying it on as part of their yearly work. There are different methods of staking employed and as yet it is mainly the early varieties that are being staked and in quantities ranging from a few plants to one and a half to two acres.

The commonest method is to drive a stake into the ground beside the plant and tie the plant to it with either twine or raffia. The stakes are of one and one and a half inch material, and are made from five to seven feet in length. The plants are set eighteen to twenty inches apart in the rows and three to four feet between the rows. The vines are trimmed to one stem. Growers claim that they get earlier fruit by nearly a week, and that the quality of the fruit is improved. The estimated cost of staking plants is between five and ten cents a plant.

Sowing Vegetable Seeds

Mrs. Dell Grattan, Port Arthur, Ont.

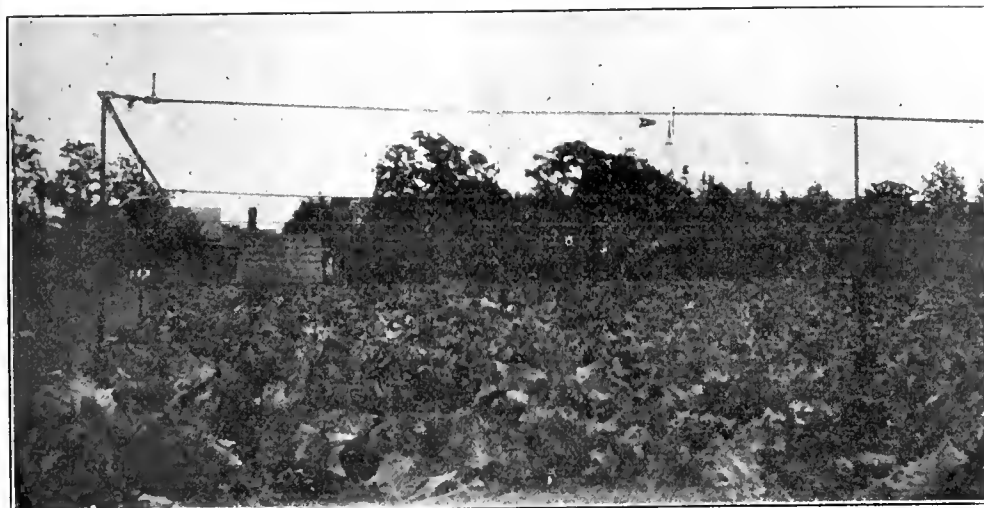
THE time for sowing vegetable seeds out of doors varies greatly. First of all have the ground well prepared and enriched. Before starting to sow, remove all stones and rubbish and pulverize the soil thoroughly. Be neat in all you do.

Onions, peas, spinach, carrots, parsnips and other hardy vegetables may be planted as soon as the ground is fit. Leave cucumber, squash and corn until danger of frost is passed. Sow the seeds in moist or freshly stirred soil. Do not plant too deeply. Sow radish in good rich soil in order to have quick growth. For a succession, sow every two weeks.

Cauliflower seed is very expensive, so when I do not plant in the hot bed but out in the open garden I always put in with it about a cupful of turnip seed, mix them and sow. The turnip plants may be removed before they smother the cauliflower plants. Early Snowball or Dwarf Erfurt are fine for the garden. A great many sow cauliflower and cabbage in the hot bed. It is all right to plant a few seeds so as to have early ones to use, but as a rule the better plan is to sow them directly in rows in the garden as soon as the weather will permit. Mix cabbage seed with turnip seed the same as with cauliflower. This saves time, and I have had good heads just as quickly from plants grown from the start out in the open, although it is hardly considered possible by some. Try both ways.

Cabbage is a gross feeder, and needs lots of rich manure. Most of the best growers apply manure broadcast. In growing early cabbage it is an excellent plan to apply a little dry hen manure around the hills when the plants are half grown. This should be put close to the plants, but scattered over a radius of a foot or more from the plants and then cultivated into the soil. The Early

* Extract from an address delivered at the last annual convention of the Ontario Vegetable Growers' Association.



The Skinner System of Irrigation as Used at Several Places in Essex County, Ont.

—Photo by W. E. J. Edwards, B.S.A.

Winningstadt, Early Express and Glory of Enkhuizen are good varieties.

Corn should not be planted until the soil is warm as the seed is apt to perish

if the season is backward and wet. I have tried several varieties and have found the Malakoff and Squaw to be the most suitable for the west.

Irrigation and Its Practical Results

ONE of the most practical and instructive addresses delivered at the convention of the Ontario Vegetable Growers' Association in Toronto last November was that of J. J. Davis, of London, Ont.

"In the course of a year," said Mr. Davis, "we have a great variety of weather. I have never seen a season in which there have not been periods that I could use water very profitably. Of course, there is a great difference in seasons. Sometimes we get very nearly as much rain as we want, but at other times not nearly a sufficient supply.

"Our business is in one way a great deal more favored than that of some others. For instance, the milkman must not introduce water into his business, and there are men behind prison bars to-day for selling watered stock. But we can introduce water into our business and get a premium for doing so.

"The first time I started watering was on a fine patch of pickling cucumbers. It was a very dry season, and I was needing money. I had a well sixty feet deep, and I pumped the water by hand, raised it into a barrel, and drew it to the cucumber patch. I got fifty feet of hose to run it over something else growing in the same patch. Although this was a very crude system the results were so good that it opened my eyes to the value of water, and I began to turn my attention to a better system.

"I got a windmill and tanks and did some watering that way. After that I purchased a gasoline engine. I laid pipes out through the fields, and when water was wanted I would start the

engine and attach hose to the piping. That worked pretty well. One can supply a lot of water in a day with that kind of an outfit. The trouble, however, was that it took a great deal of time to apply the water.

"A neighbor of mine had seen the Skinner system in operation, and we got our heads together and came to the conclusion that the Skinner system was about the thing we needed. The advantage that this system has over any other that I have ever tried is that it applies the water itself. The system is direct lines of pipe and the water is applied with pressure from an engine. All you have to do is to start the engine, and by simply sending a boy to oil the pump it will run half a day without being looked at.

"With the old system of watering I found that as long as there was a cloud in the sky a person would put off watering in the hope that rain would come. In a dry period every day that the crop is going without water a certain amount is lost. It takes so little time to start the Skinner system one does not depend on the rain."

Mr. Davis strongly advised any member who was starting to irrigate to start on a large enough scale. If a small plant is put in on the start one cannot add to it, but has to start right at the beginning again, for unless you have sufficient power it will not operate more than a certain amount of piping.

"A man who has never had any experience," continued Mr. Davis, "has no idea how much water it takes to water a small piece of ground. Some soils will

take a great deal more than others. With the outfit that I have I can apply about two thousand seven hundred gallons an hour. There is practically no water wasted, and on account of having plenty of water I very rarely have a poor crop. If it wasn't for the water I would go out of the gardening business and find something more profitable."

Mr. Davis was asked if he had found it necessary to put in more drains since using this system. Mr. Davis replied that he had not. The idea is not to fill the soil full of water, but just to keep things in good growing condition.

Mr. J. Lockie Wilson asked what was the cost of Mr. Davis' outfit and how much land he could irrigate.

Mr. Davis replied that as near as he could figure it out, the full equipment had cost him about one thousand dollars, and that he had about four acres of garden.

Another member asked what width apart the pipes were paced and how often they had to be turned when watering. The pipes were fifty feet apart, Mr. Davis said, and a handle was arranged on the pipe so that one could turn it one way and it would throw water for twenty-five feet, then gradually keep turning it until a space of fifty feet was watered with one pipe.

The question was asked, "What time of day is best to water?" to which Mr. Davis replied that he considered four o'clock in the afternoon the most satisfactory. A member remarked that a neighbor of his tried watering in the morning and evening and found that the crop that was watered in the evening was nearly sixty per cent. better. This, Mr. Davis said, was easily explained, as the water applied in the evening would have all night to evaporate.

"What pressure do you use?" was another question. Mr. Davis replied that he had a five horse-power engine which he runs for all it is worth. One can run it with ten pound pressure or a seventy or eighty pound pressure.

Before leaving the platform, Mr. Davis was asked if he was in the habit of keeping an account of his receipts and expenses for each year, to which Mr. Davis replied: "The only book I have around my house is a bank book. It tells me at the end of the year how much money I have."

We should rotate cabbage and potatoes because these are the most exhaustive crops we grow. A ton of potatoes contains about twelve pounds of potash, four pounds of sulphuric acid, four pounds of phosphoric acid, and one pound of magnesia. We may replace these substances by abundant manuring, but if we follow a well-planned rotation the amount of manure required will be greatly reduced.

The Canadian Horticulturist

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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee-keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office) 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

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The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1911. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,626	Total	150,293

Average each issue in 1907, 8,627
" " " 1913, 12,524

Sworn detailed statements will be mailed upon application

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

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THE CANADIAN HORTICULTURIST,
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EDITORIAL

PLANNING THE SMALL GARDEN

We cannot expect satisfaction in the planting and developing of the home surroundings unless we have a definite conception of what is to be done. The trouble with home grounds is not so much that there is too little planting of trees and shrubs as that the planting is meaningless. Every plot should be a picture in itself. Happy is the lover of gardening who finds himself in a position so fortunate that, either as the owner or the tenant of a virgin strip of land, he is able to design his own garden so that it becomes, as it ought to, a true image of his own personality. However, it is not every owner of a garden to whom is offered the opportunity of taking part in the planning and laying out of this plot of ground. If we live in the city or in the suburbs of a town the chances are that when we take possession of our new home we find inexorably fixed for us the shape of our garden; its walks constructed; its borders made; and the lawn already laid. This has been either the work of the builder, who may have had no soul above stone and lime, or of a previous occupier, who had neither the time nor inclination to make his plot a thing of beauty. When this has been our fate, there is nothing to be done but, at some considerable expense, design anew our misshapen and disfigured plot, and to bring it by hard work and perseverance into shape in which the plants of our choice will thrive.

The perfect garden is that which, at a first embracing glance, satisfies the artistic sense of the beholder. Therefore, where the garden is to be transformed into a delightful setting for the home, it will be necessary to consider other things than the successful culture of perfect flowers. Should there be any feature of it out of proportion, which attracts the eye and detains it to the exclusion of other things, then is the garden ill-planned.

Have your plot so planned that the observer catches its entire effect and purpose without hesitating to analyze its parts, every feature contributing its part to one strong and homogeneous effect. This style of designing and planting makes a landscape, even though the garden be no larger than your parlor.

A mistake that is commonly made in garden planning is to make the principal borders subservient to the paths. Their consideration should be in the reverse order. If the desire of the owner be to cultivate perfect flowers, he must not stint his beds and borders for space. The two feet border only tends to cramp and overcrowd, whereas a border five or six feet in width gives scope for bold massing and tasteful arrangement.

Regarding the paths, it rarely occurs that we have much say in this matter, as these are generally fixed for us, and we must make the best of them. Whether they be triangular, rectangular, or curved, we are compelled, in the majority of cases, to make our plan conform to the outlines which other people have decided for us. We may, however, if we desire, so harmonize our paths that they shall work in with the design chosen for the principal

borders and beds. It should always be borne in mind that the path is meant to serve a useful purpose; that it is intended to lead somewhere. The straight, broad path, leading past the principal border, has superior advantage over all others, especially where space is limited. The winding path is difficult to plan tastefully, and tends to eat up ground which might be devoted more satisfactorily to the cultivation of flowers.

We must each decide for ourselves the features we wish to introduce; whether, for instance, if we love roses, we shall devote a section for this flower; whether we will introduce a pergola and arches for the support of the many climbing plants that go a long way in adding to the splendor of the garden; whether we will construct a rockery; or whether we will have space enough for the erection of a summerhouse. Accessories, such as seats and benches, and tubs for ferns, if good taste be displayed, add to the beautifying of the garden picture. The greatest returns from our labor will be obtained if we plan our gardens so that they will have a pictorial effect, that is restful and satisfying.

FRUIT COMMISSIONER WANTED

The death of Alexander McNeill has left the Dominion Fruit Division without a chief executive officer. Hon. Martin Burrell, Dominion Minister of Agriculture, will do well if he takes advantage of the situation to fulfill the promises made when his party was in opposition, by raising the status of the Fruit Division through the appointment of a fruit commissioner responsible only to the Deputy Minister and the Minister of Agriculture.

Hitherto the Fruit Division has been one of three divisions under the charge of the dairy and cold storage commissioner. For ten years the fruit growers of Canada have been agitating that the Fruit Division should be given the same standing in the department as is occupied by the seed, live stock, and veterinary divisions, each of whom have commissioners at their head who have the entire responsibility for the work conducted in their respective divisions. Such a change was strongly advocated at the Dominion Fruit Conference held some six years ago. The change was again urged at the fruit conference held in Ottawa two years ago.

The great development that has taken place during the past two years in the fruit interests of the Dominion has made it imperative that this change should be made without further delay. Nothing Hon. Martin Burrell can do would please the fruit growers more than the making of this change at this time. Knowing the interest the Minister of Agriculture takes in the fruit industry we are assured that whoever may be appointed as fruit commissioner will be a man thoroughly well qualified to administer the important position he will occupy.

A WIDENING VISION

The rapid development that is taking place in the fruit interests of Canada is evidenced by the business-like view the officers of our leading fruit growers' associations are taking of the future of the industry. A few years ago most of our fruit growers paid but little attention to fruit interests outside of their respective provinces. The improvement in transportation facilities and the development of the cooperative marketing of fruit has brought

the fruit of the different provinces into competition in the western and British markets of late years in a manner that is forcing our fruit growers to investigate conditions more thoroughly than ever before.

Our leading fruit growers to-day look forward not only to the prospect for the current year's crop, but to the probable production of fruit for the world's markets for years to come. In their survey of conditions apple growers are now taking into consideration the competition that may be expected from the growers of other varieties of fruit, such as oranges and bananas. On one point a unanimous decision has been reached: The markets of the future are going to demand a better quality of fruit, packed strictly according to grade. The sooner the rank and file of our fruit growers recognize the impending change in methods, the better will it be for them and for the fruit industry.

One of the chief elements of success in the work of a horticultural society is enthusiasm. Without exception those horticultural societies in Ontario which are doing the best work are those which are manned by enthusiastic officers. In most cases the enthusiasm is provided in the main by some one individual who has succeeded in grouping around himself other horticulturists who have caught his enthusiasm, and who therefore render willing and ready support. Most of the horticultural societies in Ontario are doing effective and efficient work. Some are not doing as well as they might. Where members or officers of societies feel that they are not doing all that is easily possible they might well, as a first step towards improvement, ask themselves if this little element of enthusiasm is present to the requisite extent.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

Society Work*

H. W. Brown, Berlin, Ont.

I am strongly in favor of horticultural societies holding at least one exhibition each year, and more than one where conditions are right. Societies which omit exhibitions spare themselves a great deal of work (possibly not unknown to themselves) but they lose one of their most potent forces for stimulating interest among their own members for actually increasing their membership, and for creating enthusiasm among the public generally. Healthy competition is an influence for good which must not be thoughtlessly cast to the winds. I would like to see exhibitions, modest or otherwise, made compulsory. The prize lists, of course, must be drafted to suit conditions, but to many new societies, and indeed to some older ones, a circular from the superintendent outlining a model or type of prize list for a small society, with hints as to how and along what lines its value to a society might be increased, would be very welcome, for where a new society is organized, having as one of its members a man really competent to arrange these and other details for his society, ten other societies are not so fortunately situated.

*Extract from a paper read at the last annual convention of the Ontario Horticultural Association

In our city, which is pretty generally regarded as a city of homes and gardens and home-like surroundings, the short three-year period of organized work in horticulture has taught many of us to see to details of grounds and gardening before overlooked, has brought to the front vegetable and flower growers hitherto unknown except to their immediate neighbors, and has produced incipient horticulturalists where before none existed. It is gratifying to know that abundant assistance lies within the reach of every society which shows merit or progress. My plea is not for more and for greater assistance, but for a wider, more direct and more certain distribution of the assistance which is already available, but to some extent not apprehended.

Suggestions for Societies

In the talk he gave at the last annual convention of the Ontario Horticultural Association, a portion of which was published in the March issue of *The Canadian Horticulturist*. Dr. Frank E. Bennett, the enthusiastic president of the St. Thomas Horticultural Society, gave the following additional suggestions to the officers of societies:

During the winter of 1912-13 we planned a larger and broader lawn and garden competition, giving the working man a class of his own and the man who had a gardener a class of his own. Some good prizes were also offered to the janitors of the public schools and Collegiate Institute for the best kept lawns and floral effects, with wonderful results.

The cooperation of the Board of Trade was secured and a splendid cup offered for the best kept factory ground, while another very popular contest was the school children's contest. Prizes in cash and goods totalling three hundred dollars were awarded, in addition to several valuable medals and cups. The usual monthly flower shows were held during 1913 and at the last show five hundred entries were received, taxing to their utmost two large store windows, and making it almost compulsory to secure larger quarters for the shows of 1914.

The merchants, banks, and factories located on corner lots were especially canvassed and their interest in the beautification of the city secured, with the result that nearly every corner in the city now has its small boulevard, lawn, and flower bed. Fifty-two public flower beds, most of them twenty feet by four feet, were planted, as many as possible being placed along the route of the street car belt line, where the most people would be able to enjoy the beauty of the flowers. Eight more beds have been added this fall, and have been planted with tulips. Flower beds have been placed at the City Hall, the Public Library and the Post Office, and in each place the lawns have been improved, while the rivalry for the Board of Trade cup has created the keenest possible competition among the factories of the city.

I had almost forgotten one big factor in our success. I refer to the splendid service and support given to the work of the society by the local press. When you have printing to do, don't go round the corner to a cheap shop, give it to your newspaper; even if the price is a little higher, you will reap your reward.

As I have said before, new members are joining by dozens and every old member is renewing his subscription and member-

ship, and with a combined effort we shall reach the 1,200 mark. We'll do it.

I would like to give you a few pointers on your canvassing. Send out enthusiasts, send out workers and not drones. Have several good arguments to offer as to why a citizen should be a member. Then, if all other arguments fail, try this one; I have tried it and I know. Whenever I meet one, I say to him, "Is it worth a dollar to you to have St. Thomas made the finest city in Ontario?" and hardly ever have I any answer but "Yes." At this point pull out a membership card (fill it in, and hand it to him, with a receipt, and wait for the dollar. You will not have to wait long; that inherent civic pride germ works quick, and you have another member.

To conclude and summarize, put out plenty of public flower beds, hold frequent flower shows, arrange lawn, garden, and floral beautification contests; form street improvement societies; give liberal premiums; elect none but workers on the executive—and here just a word of warning, avoid as much as possible placing semi-professional horticulturists in official or executive positions as it has an unfortunate tendency to dampen the interest and ardor of the entirely amateur. By following these rules you may soon have a society like unto ours.

Shade Trees Suffer

Dr. Fernow says that in "walking along the streets of any city one will find at least from twenty-five to fifty per cent. of the trees in a damaged condition." In the small towns of eastern Canada, it is safe to say that at least seventy-five per cent. of the shade trees need attention, for, unlike the cities, these towns employ no "tree doctors" to guard the health of the trees, and even trimming is done but irregularly, and often carelessly. Yet if the shade trees in many of these towns were destroyed one of their chief attractions would be gone.

There are several reasons why the trees in these old towns require special attention. The chief is probably due to defective crown development, the result of overcrowding. Misshapen and weakened crowns result in excessive windbreak, and ragged break, if left untrimmed, provide the best possible entrance for fungi and insect pests, so that a great number of these fine old shade trees, which because of their very age are unable, unassisted, to shake off these foes, are slowly dying through neglect.

Mature trees of whatever species should be at least thirty feet apart and the municipal act empower municipal councils to remove trees within this limit without the owner's consent. If this provision were judiciously acted upon in the old towns of eastern Canada, the remaining shade trees would be given a new lease of life. The Forestry Branch of the Department of the Interior, Ottawa, has on its staff a skilled silviculturist, whose services are available to woodlot owners. Municipal shade trees are not, strictly speaking, woodlots, but municipalities so desiring could doubtless secure the advice of this expert regarding the trees requiring removal.

Even if no more trees are planted in British Columbia than are there now, the apple production of the province will be ten times as great as it is at present when immature trees now out come into bearing.—C. J. Thornton, M.P.

Nova Scotia Fruit Growers Face the Future

At the annual convention of the Nova Scotia Fruit Growers' Association, held in January, President S. C. Parker of Berwick, discussed frankly the work of the year and the prospects for the future. As his remarks were of more than usual interest, we give them here almost in full. Mr. Parker spoke as follows:

We are gathered to-day to review the successes and failures of the past year, to look into the present situation, and to consider what can be done in the future to place our business on a better basis. The results of the past year have been far from satisfactory. We had our chance and failed to take advantage of it. On the first day of May, 1913, this Valley had a chance to make good. We had a good show of blossoms, with a prospect of, at least, a fair crop of apples. We gathered a very moderate crop of very poor apples. Nineteen hundred and thirteen was a year, when to make good in apples meant a lot of money and much free advertising of our orchards and their products. The markets of the world were open to us—no apple growing section on this continent had a full crop.

The markets were ready to absorb all good fruit available at a good price. We have not made good, and, in my opinion, this failure is the fault of the fruit growers rather than that of Providence, upon whom too many of us are inclined to put all blame. I know there are hundreds of fruit growers in this Valley, and doubtless some here to-day, who will hasten to dispute this assertion. I am prepared to back this statement to the limit. Show me any orchard in the Valley that in the season of 1913 grew a few measly barrels of scabby apples, and I will guarantee to find within five miles of this orchard a farmer who, under practically the same conditions with the same environment, had a fair to good crop of comparatively clean apples. I will make another assertion that some may rise to dispute. Thorough spraying will not only make apples grow clean, but it will make apples grow when otherwise there would be none. I can give you concrete proof, and much evidence to this end will be offered before the meeting is closed. And, just now, all will concede that there was not a crop of clean apples in any orchard this season that was not sprayed in the most thorough manner.

There is only one salvation for apple growing in this Annapolis Valley, and that is in the gospel of good spraying. We must grow clean apples—nothing else counts. The grower of spotted apples is certain to grow poor, and the more apples he grows the poorer he will become. Scabby apples will not be worth anything in the near future, and the man who grows them will not earn his board.

Apples can be kept clean even in the worst season, for we have men here to-day who have succeeded in doing so; and what one has done others may do.

THE WORLD'S CROP

The world's crop of apples for the year 1913 was small. Ontario had a small crop, and patchy both in quantity and quality. Ontario, of course, is a large province and the apple areas are widely distributed. Some sections had good quality and others very spotted; New York and New England had an off year. The crop of the middle west was comparatively light; British Columbia had the most apples she has ever

had. The western states had about half of last year's crop.

THE SHADOW OF OVERPRODUCTION

It is from the western states that the shadow of overproduction looms large. New York and New England are giving their orchards better care, and improving rapidly in quantity and quality; but the enormous population in the east will take care of an increasingly large quantity of apples. Ontario this year shipped nearly 400,000 barrels to western Canada and that growing country will consume any Ontario surplus, if she can hold the market. The four states of Oregon, Montana, Utah, Washington, produced in 1911, 18,000 carloads. This year, with an off crop, 10,000 carloads. Next year they expect to produce 25,000 carloads. This tier of western states is said to have 120,000 acres of orchard just coming into bearing. At 100 barrels per acre, or 300 boxes, as they count them there, we are to face 20,000,000 barrels of apples added to the world's production. That is the problem we are facing, and that is why I say it is useless for us to face that tremendous flood of big, red and yellow apples with a few thousand barrels of miserable spotted trash that is scarcely worthy a place in the cider mill.

Many of you who keep in touch with the foreign markets, know that two years ago thousands of boxes of Oregon Newtons, the highest priced apple in the world, were selling in Liverpool and London at four shillings a box. This is what increased production may mean; and that is the reason this Association is calling on all interested to get busy and grow clean apples, and only clean apples in competition for the world's market.

ORGANIZATION NEEDED

The next step in the fight for supremacy in the struggle, is good organization in marketing. The United Fruit Companies have taken a prominent place in the great selling factors of this country. For an organization in the first year of its history to handle nearly one-half of the output of apples of this province, is certainly a remarkable record. If there had been no central organization to manage the output I am convinced there would have been a far different record, both last year and this. The flood of scabby apples poured on the London market, as without the guiding hand of the central organization would have been the case, must have resulted disastrously to all fruit interests.

I am convinced that one organization, controlling all the export apples of this province, is essential to the best interests of all progress. The United Fruit Company may well feel proud of its record and its work, and this association may certainly be proud of the part it had in effecting the organization.

BRITISH COLUMBIA ALERT

The British Columbia Government sent their Secretary for Agriculture to the head office at Berwick to inquire into the methods of organization. British Columbia is organizing cooperative companies, with Government assistance and Government capital. The United Fruit Companies has its present standing without Government grants or Government assistance of any kind. In fact, more than once, the organization has been effected in spite of Legis-

lative indifference, if not active opposition.

Your president was invited by the Ontario Fruit Growers' Association to visit their annual meeting in November and address them on Cooperative Marketing in Nova Scotia. I had the honor of giving that association a brief history of the organization of the United Fruit Companies, in the presence of the Minister of Agriculture and Dr. C. C. James, adviser to the Minister, both of whom expressed a great interest in the work being done in this province.

In listening for two or three days to the discussion of the Ontario fruit men, I found their problems much the same as ours. Transportation is a big question with them owing to their long rail haul and enormous output of soft fruit. Their troubles cause ours to shrink into insignificance. They have a permanent transportation committee with a paid secretary. This committee is kept busy in looking after matters in this connection.

THE COOPERATIVE ASSOCIATIONS

Second, only, to the importance of growing clean apples is the importance of standing close by the cooperative organizations; the next five years means five years of struggle to maintain our ground. We have many advantages that none of our competitors can ever have. The fittest only will survive, and it is up to us to make good.

In the death of Alexander McNeill, for many years Chief of the Federal Fruit Division, this association and the great fruit interests of Canada have lost a tried and proven friend. Mr. McNeill was a familiar figure in these meetings. He came to us many times at much personal sacrifice. He was always ready to assist when needed, to speak the cheering word and work for the advancement of the fruit interests of Canada. Personally, and, I am sure I speak for every member, we deplore the death of our late chief and feel the loss of a friend and co-worker, who was always ready to work for the advancement of a true Canadian nationality.

While the Fruit Division is without a head, it seems an opportune time to press on the Government the growing importance of the fruit interests, and to urge the Minister of Agriculture to establish horticulture as an independent department under a commissioner, rather than remaining subsidiary to some other department.

A Wasted Fertilizer

Jas. Sackville, Bewdley, Ont.

Does it not seem strange that more attention has not been turned to the utilization of the sewerage of the cities and towns for manurial purposes? This material should increase the productiveness of the soil and return an increased supply of food to the markets instead of polluting, as it now does, the rivers and lakes with the filth of towns and cities.

There are many thousands of acres all over this fair Dominion, lying almost waste, which under proper cultivation and by the use of the manure husbanded from the sewerage and waste of towns and cities might have their productiveness increased in some cases tenfold their present yield. We hear a good deal about government ownership and municipal and governmental control. Why could not city and town councils and municipalities secure the necessary land and turn this filthy nuisance into a profitable asset?

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Ontario Fruit in the West

E. F. Palmer, Ontario Fruit Branch

AT the convention of the International Apple Shippers' Association, Cleveland, Ohio, August, 1913, Ontario fruit carried off premier honors, in competition with fruit from Oregon, Washington, Colorado, Virginia, and other states. At the Canada Land and Apple Show, Winnipeg, October 10th-18th, 1913, Ontario fruit was awarded first and second prizes in the five box lots of apples. This was the only open competition for apples. British Columbia fruit came third. At Rochester, at the annual meeting of the New York State Fruit Growers' Association, January 7th to 9th, 1914, Ontario fruit won first prize in the three box lots of apples—the only open competition. Oregon and New York State were "also rans."

Ontario, in the only three competitions in which she entered, carried off the premier honors in each case. Who says Ontario cannot produce as good or better fruit both as to quality and appearance, as can be grown anywhere in the world, or, coming nearer home, in America? British Columbia, Oregon, Washington, Virginia, and New York States among others had to take a back seat when Ontario chose to compete.

That is one side of the question: Ontario produces the finest apples in the world. The other and vital side of the question, as I stated in the February issue of *The Canadian Horticulturist*, is that Ontario, as a whole, is not producing such fruit—or what is almost, if not quite, as important, she is not, as a province, putting her fruit up in such a manner that

Douglas Gardens

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Campanula (Bellflower) 4 vars., 1 yr plants; each 20c; 10, \$1.50.

Dicentra (Bleeding Heart), each 20c

Digitalis (Foxglove), 5 vars., 1 yr. plants, each 20c; 10, \$1.50.

Helenium, 5 vars., each 15c and 20c.

Hemerocallis, 3 vars., each 15c, 20c; 10, \$1.25, \$1.50.

Heuchera, each 20c; 10, \$1.50.

Kniphofia (Tritoma), each 15c; 10 \$1.25.

Shasta Daisies, 3 vars., each 25c; 10, \$2.00.

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it appeals to the consumer. Western dealers are accused of being unjustly prejudiced against Ontario fruit, and while there is some truth in this, yet they also have reason to be prejudiced, to some extent at any rate.

THE CRITICISM OF A FRIEND

The following are the contents of a letter, written from Regina, under date of January 13, 1914, and recently received by P. W. Hodgetts, Director of the Fruit Branch, from one of Ontario's leading apple growers.

"Being desirous of finding out, for myself, first hand as to the requirements of the apple market at Regina and Moose Jaw, I took our last car at the beginning of December and accompanied it to Regina, where I placed it in storage. It consisted of boxes and barrels, about half a car of each. They were all Spy and No. 1 stock throughout.

"I have met practically every dealer of importance in Regina and Moose Jaw (retailers only), and could find none who had boxed apples from Ontario. Several cars of Ontario barrel stock were placed here and the most of it was horrible to behold. The only barrel stock I saw, which I was not ashamed of, was put up by a Fruit Growers' Association, and sold at Moose Jaw.

"Fully 90 per cent. of the retailers here, being so dubious of Ontario stuff, have quit it entirely and stock up with the western fruits.

"I have been able in almost every case to interest the retailers sufficiently to have them examine these apples, and they all appear enthusiastic about the wrapped and boxed apples. It was a big surprise to me to hear most of them remark that 'this was the first lot of Ontario boxed stuff they had seen.'

"The one feature which has been most gratifying is the fact that this car of fruit is superior to any Western fruit I have been able to find on sale.

"I will list as briefly as possible my observations of conditions as they at present exist at Regina, Moose Jaw, and surrounding country.

"Ontario apples are admitted to possess the highest quality.

"Ninety per cent. of the dealers state that they will never buy barrel apples again.

"Ninety per cent. of the dealers here are stocked entirely with western boxed apples now. They buy western stuff on account of getting an honest and uniform grade throughout.

"Seventy-five per cent. of the retailers are prejudiced against the Ontario pack. These retailers state that they would favor the Ontario apple if they could get it wrapped and boxed and honestly put up.

"Ontario can grow the best apples known, but in spite of this Ontario apples have a bad reputation.

"It is high time that the crooked dealers were roughly handled.

"This lot of apples will net us approximately five dollars a barrel and two dollars a box."

I believe I voice the desire of the greater part of the fruit growers and shippers of Ontario when I say that we want the Inspection and Sales Act changed as to give us inspection at point of shipment, and that inspection there shall be final.—D. Johnson, Forest, Ont.



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The Review and American Bee Journal one year, \$1.50.

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THE BEEKEEPERS' REVIEW, North Star, Mich.

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FIRST CLASS FRUIT TREES

Two year old, 3 to 5 ft. high. To introduce our stock will sell while they last at \$20.00 per 100, \$2.50 per 10. All varieties of Plums, Pears, Peaches, Cherries and Apples. Special prices to Associations.

W. P. POWE & SON - CAINSVILLE, ONT.

QUEENS

Bred from Doolittles best Italian stock. It is to your advantage to order now.

ONE DOLLAR EACH

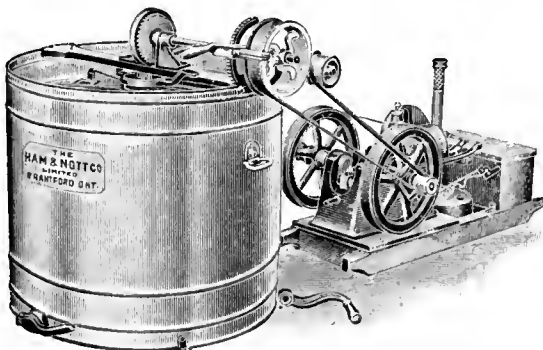
The bees from my breeding queens are very gentle and good honey gatherers.

P. TEMPLE

438 Gladstone Ave. - Toronto, Ont.

Safe arrival guaranteed

POWER HONEY EXTRACTORS



(6 Frame L. Extractor with $1\frac{1}{2}$ H. P. Engine)

Cut Gears, Heavy Steel Brake, Removeable Comb-Baskets

This outfit combines **Simplicity, Strength and Efficiency**

WRITE

THE HAM & NOTT COMPANY
BRANTFORD, ONT. LIMITED

Apple Shippers

Read this before disposing of your Apples



IT'S ONLY NATURAL to give your own property **THE PREFERENCE** — Blood is thicker than water.

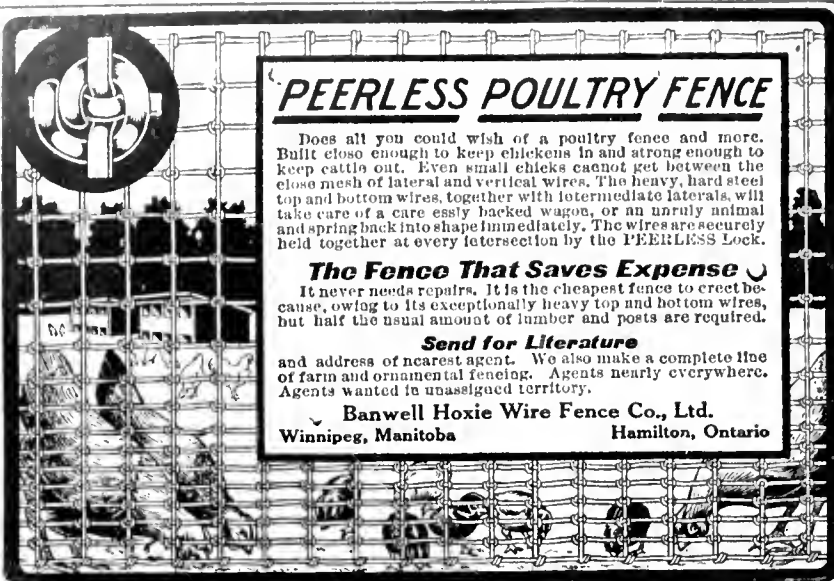
Having no bought apples of our own, we are in a position to look after your interests. Consign your apples to us—we can take care of them for you.

Have ample storage to hold for improved market.

Dawson-Elliott Co.

32 West Market St., TORONTO

PHONE MAIN 1471



PEERLESS POULTRY FENCE

Does all you could wish of a poultry fence and more. Built close enough to keep chickens in and strong enough to keep cattle out. Even small chicks cannot get between the close mesh of lateral and vertical wires. The heavy, hard steel top and bottom wires, together with intermediate laterals, will take care of a carelessly backed wagon, or an unruly animal and spring back into shape immediately. The wires are securely held together at every intersection by the PEERLESS Lock.

The Fence That Saves Expense

It never needs repairs. It is the cheapest fence to erect because, owing to its exceptionally heavy top and bottom wires, but half the usual amount of lumber and posts are required.

Send for Literature

and address of nearest agent. We also make a complete line of farm and ornamental fencing. Agents nearly everywhere. Agents wanted in unassigned territory.

Banwell Hoxie Wire Fence Co., Ltd.
Winnipeg, Manitoba Hamilton, Ontario



He's Big All Over And Good All Through

Big Ben is built for *endless* service. He has no "off-days," no shut-downs. His four years of existence have been one long record of on-the-dot accuracy. 7,000 Canadian dealers say that he does more *efficient* work for less pay than any other clock alive.

A Big Ben battalion, over 3,000 strong, leaves La Salle, Illinois, every day. Their sparkling triple nickel-plated coats of implement steel; their dominating seven-inch height; their big, bold, black, easy-to-read figures and hands; their big, easy-to-wind keys—all make Big Ben the world's master clock.

In return for one little drop of oil, he'll work for you a full year. From "Boots on" to "Lights out"—365 times—he'll guarantee to tell you the

time o' day with on-the-dot accuracy.

He'll guarantee to get you up either of TWO WAYS—with one long, steady, five-minute ring if you need a good big call, or on the *installment plan*, with short rings one half-minute apart for ten minutes, so you'll wake up *gradually*, and he'll stop short in the middle of a tap during *either* call if you want to shut him off.

Big Ben is a mighty pleasant looking fellow. His big, open honest face and his gentle tick-tick have earned him a place in thousands of *parlors*.

The next time you go to town call at your dealer's and ask to see Big Ben. If your dealer hasn't him, send a money order for \$3.00 to his makers—Westchx, La Salle, Illinois—and he'll come to you prepaid.

British Columbia

The fruit growers of the Okanagan district were encouraged by the reports presented at the recent annual meeting of the Okanagan United Growers' Limited. They showed a balance on hand on December 31, 1913, of \$21,400. The total shipments through the central body up to December 31st included five hundred and forty-one cars of fruit valued at three hundred and twenty-two thousand five hundred and sixty-three dollars. The operating expenses charged to the Central Organization totalled four decimal four per cent., including the sum of five hundred dollars, which had been set aside to offset possible bad debts and similar charges. To this should be added the brokerage charges, amounting to two decimal forty-three per cent., making the total operating expenses of the Central Company six decimal eighty-three per cent. The reserve fund amounted to twelve thousand three hundred and sixty-seven dollars, which will be returnable to the shareholders after three years at four per cent.

The strongest competition the company had to meet was furnished by the North Pacific Fruit Distributors, representing the four States of Washington, Oregon, Idaho and Montana, which maintained about thirty wholesale fruit houses in the Canadian west, on whose behalf two large brokerage firms were operating. The United Growers Limited early in the season arranged to sell much of its product to the Mutual Brokerage Company of Calgary.

The company expects to make considerable improvements in its business arrangements this year. These include an estimated saving of four thousand dollars in the purchase of box material and one-half cent a pound on all wrapping paper needed. Arrangements are in progress for the purchase of vegetable seeds from an association in Ontario which will effect a great saving.

Niagara District

A series of very successful meetings was held the first of March by the Niagara Peninsula Fruit Growers' Association. Meetings were held at Grimsby and St. Catharines. The speakers included Dr. H. A. Surface, of Harrisburg, Pa., who gave several excellent addresses. Extracts from one of these addresses appear elsewhere in this issue. A report of a second address will be published later.

Prof. R. Harcourt of the Ontario Agricultural College spoke on "The Most profitable Commercial Fertilizers for the Orchard." Mr. W. T. Macoun, Dominion Horticulturist, spoke on "The Best Varieties of Strawberries" and "The Influence of Chemistry on Fruits and Fruit Growing," as well as several other subjects. For a commercial plantation of strawberries, Mr. Macoun recommended Senator Dunlap, Glen Marv, Parson's Beauty, William Splendid, Warfield, and Grenville. For raspberries he recommended the Marlboro for early and Cuthbert for the main crops, with Herbert as a special for the colder parts of the province.

Prof. W. W. Farnsworth, of the Ohio Agricultural College, spoke on the general management of the orchard. Mr. W. A. McCubbin was another speaker. The meetings concluded with the holding of a banquet in St. Catharines, which was largely attended and most successful.

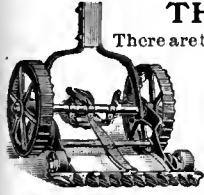
Spraying intelligently done will control all the orchard insects in the district.

Parks, Gardens, Lawns Planned and Planted

Expert Advice

CHARLES ERNEST WOOLVERTON
Landscape Gardener, GRIMSBY, Ont.

THE CLIPPER



There are three things that destroy your lawns—Dandelions, Buck Plantain and Crab Grass. In one season the Clipper will drive them all out. Your dealer should have them. If he has not drop us a line and we will send circulars and prices. **CLIPPER LAWN MOWER CO.**
Box 10, Dixon, Ill.

THIS WASHER MUST PAY FOR ITSELF.

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse, but, I didn't know anything about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right," but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now, this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way. So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing the clothes. Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges, nor break buttons, the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight, too. Surely that is fair enough, isn't it.

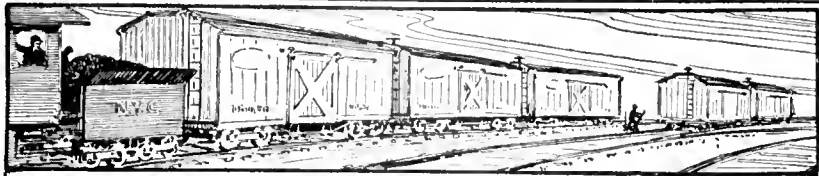
Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week 'till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer, that washes clothes in six minutes.

Address me personally:

K. G. MORRIS, Manager, 1900 Washer Co., 357 Yonge St., Toronto, Ont.



Why Not Cut Off the Two Cars of Filler?

It takes 400,000 cars to carry American Fertilizers to our farmers and planters every season. Forty per cent.—2 cars out of 5—of this stuff is Filler, which requires 160,000 cars! Order less filler, higher grade and

Nitrate of Soda

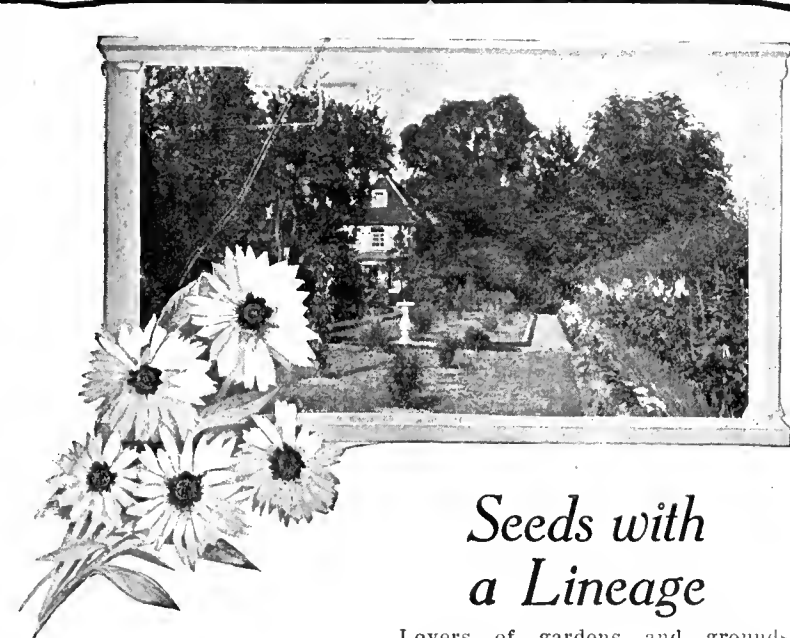
for your active Nitrogen and save freight bills.

The greater productive capacity of high-grade fertilizers without so much filler means a greater outbound tonnage for railroads and greater purchasing power for farmers, so that railroads and everybody would be benefited.

DR. WM. S. MYERS, Chilean Nitrate Propaganda

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25 Madison Ave., New York



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Lovers of gardens and grounds should know that at Raynes Park, London, England, Messrs. James Carter & Co. have the finest and most complete testing and trial grounds in the world.

Their equipment and the unique methods employed guarantee the quality of their seeds. For generations they have been cultivating, selecting and perfecting until Carters Tested Seeds have reached the highest percentage of purity and germination.

In England, where the art of gardening is most highly developed, Carters Seeds rank first. Ask any gardener with experience in Great Britain—he will know Carter.

In Canada, Carters Seeds have achieved a tremendous success, both on large estates and in smaller gardens.

We import these seeds direct from Raynes Park and carry a complete stock at our Toronto warehouse. We issue an American Catalogue, with all prices in American money. It includes selected varieties of Flower and Vegetable Seeds, with valuable directions for planting and cultivation.

A copy of this Catalogue will be mailed you FREE. Write for it to-day.

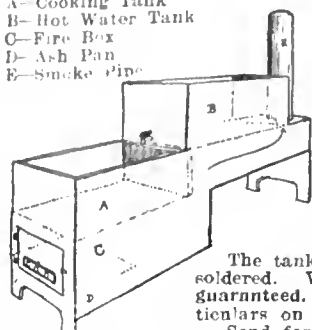
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Carters Tested Seeds

If you are interested in upkeep of Lawn, Tennis Courts or Golf Course, write for the "Practical Greenkeeper." Every Championship Golf Course in America is to-day using Carters Tested Grass Seeds.

A—Cooking Tank
B—Hot Water Tank
C—Fire Box
D—Ash Pan
E—Smoke Pipe



Make Your Own Spray

Home Boiled Lime Sulphur is being used in increasing quantities by leading fruit growers and fruit growers' associations. They find that by making their own spray they can effect a considerable money saving, and at the same time produce a preparation that will do the work thoroughly.

It is an easy matter to make home boiled lime sulphur. The chief essential is a proper spray cooker. We manufacture two kinds of cookers, one with a single tank, and one with a double tank. (See illustration.) They are designed especially for this purpose, and will give the greatest efficiency with the greatest saving of fuel. They can be used for either wood or soft coal.

The tanks are made of heavily galvanized steel, thoroughly rivetted and soldered. Will not leak. They are built to give satisfaction, and are guaranteed. Made in five sizes, capacity 30 to 75 gals. Prices and full particulars on application. Get your outfit now. Write us to-day.

Send for pamphlet illustrating the finest pruning saw on the market.

STEEL TROUGH & MACHINE CO., Ltd., TWEED, Ont.

Dollar-Saving Facts

Before buying any fence, consider the following points carefully: Then you'll discover why so many shrewd farmers declare the

"Frost Fence"

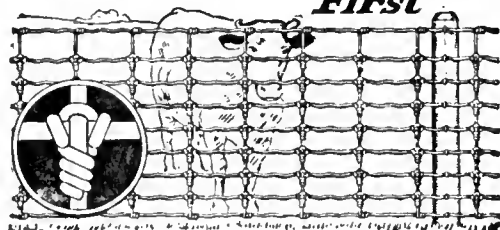
Canada's Best Fence, worth more than it costs

We manufacture every inch of wire woven into FROST FENCES in our own mills right here in Hamilton.

Therefore we know the *Quality* of both Laterals and Stays.

Our process of galvanizing is thorough and assures a thick, even coat---so we can guarantee it to be free from the

Frost Fence
First



corrosive and destructive influence of varying climatic conditions.

The Laterals are deeply waved in the making --- hence we can guarantee that heavy spring, the come-back qualities

for which the FROST FENCE is famed.

The Stays, you will see, are straight and uniformly spaced. That's the reason why we can guarantee *even distribution* of strain.

The Tie Wire is wrapped around both Laterals and Stays several times, making a permanent lock---a double surety of strength and lastingness.

Examine fences every chance you get---Study the FROST FENCE in particular---Then, when you buy, you'll make a good investment.

If you do not know the FROST FENCE man, write us---we may need an agent in your locality.

Frost Wire Fence Co. Limited
HAMILTON - ONTARIO

Annapolis Valley Notes

The United Fruit Companies have made arrangements with a local newspaper to edit and publish one page each week under the name of the Cooperative News. The name of every member in the local companies is on the lists, and in this way the central body is kept closely in touch with the members. Part of the space each week is given up to a report on the condition of the apple market, prices, and similar information. From time to time articles of an educational nature pertaining to fruit growing are printed. Before this the majority of the growers did not know what was being done, and were easily deceived by interested parties, thus causing dissatisfaction with the management.

Apple prices are still a little stronger, ranging from two to five dollars a barrel, according to grade and variety. The quality of the late winter apples is excellent. Fruit growers are beginning to realize that there is a market for their more tender varieties packed in boxes.

The agents for power sprayers are doing a rushing business, as the experiences of the past two seasons have about convinced the fruit grower that it is either spray well or look to some other line of farming for his living. In fact, the orchardist who does not spray to-day should be ashamed to look a full grown tree in the face.

The duty on basic slag, which came in force this winter, is a serious tax on the farmers of this Valley. On the order of the United Fruit Companies alone the duty means all of three thousand dollars extra charge. Almost as many tons of slag are now bought as all other kinds of fertilizer taken together. Uplands that would not yield one half ton of hay to the acre, are by the application of eight hundred pounds of slag made to grow clover most luxuriantly. By using vetches as a cover crop, and putting on a dressing of slag every few years, apples can be grown with no other expense for fertilizer. After seeing how this and other fruit grower raw materials are taxed, anyone with a sense of humor must have the face ache who reads in his morning paper that the Government have appointed another commission to find out the reason for the high cost of living. —M.K.E.

Eastern Annapolis Valley

Eunice Buchanan

Early last spring I put some apple twigs in water in order to watch the flowers develop, but they hatched out aphids and the flowers were sickly. I remarked that these insects would be troublesome in the summer, but I had no idea that they were going to be as bad as they were. This year I do not see any sign of aphids on the shoots in the house which will shortly be in blossom. By the way, lilac shoots will well repay the trouble of placing them in water if the flower buds are selected.

Farmers' meetings to discuss spraying are to be addressed between March 16th and 21st in eight different centres of King's county. Addresses will be given by Messrs. Woodworth and Robinson.

During the week ending March 7th, 7,972 barrels of apples were shipped from Nova Scotia to England; of these 7,263 were shipped by the United Fruit Companies. Prices for Ben Davis and Nonpareils were very good.



Write for
Free Book
on
Spraying

**Brown's
Auto
Spray**

300,000
use these won-
derful sprayers to
rid fields, fruit trees, gar-
dens of blight, disease and
insects—to make all pro-
duce big. Auto Spray No. 1—
Capacity 4 Gallons. Auto Pop Nozzle
throws from fine mist to drenching
stream. Does not clog. 40 styles and
sizes of Hand and Power Outfits. Large
sprayers fitted with

Non-Clog Atomic Nozzle
only nozzle that will spray any solution for days
without clogging. Fits any make of sprayer.
Write for valuable **Spraying Guide Free.**
The E. C. Brown Co., 57 JAY ST., ROCHESTER, N. Y.


**SUPERIOR
Plant Boxes**



PRICES RIGHT

Delivery in March and
April. Order NOW
to ensure prompt ship-
ments.

**Canada Wood Products
Co.**
ST. THOMAS - ONT.



SMALL FRUIT PLANTS

Gooseberries, Josselyn! Josselyn!! Red Jacket, Downing, Pearl, Houghton.—Currants, Perfection! Perfection!! Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Black Victoria, Boe-coop.—Raspberries, Herbert! Herbert!! Herbert!!! Outhbert, Marlboro. Brinckle's Orange, Golden Queen, Strawberry-Raspberry. — Garden Roots, Asparagus, Rhubarb. Write for Catalogue.

WM. FLEMING, Nurseryman, 496 - 4th Avenue W., OWEN SOUND, ONT.

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The IHC Line
GRAIN AND HAY
MACHINES
Binders, Reapers
Mowers
Rakes, Stackers
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CORN MACHINES
Planters,
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WHEN disked with a Deering disk harrow the ground is so prepared that it stores away and holds the moisture from snow and early rains, liberating it to the roots of your growing crops at the time when they need it most.


Deering disk harrows are built to do this work as it should be done. The frame is strong enough to stand up under the strain of penetrating and pulverizing hard ground. The bearings are as nearly dust and dirt proof as disk bearings can be built.

The full line includes every style of disk and smoothing harrow and the best line of drills and cultivators built. See the Deering local agent for full information about the line, or send to us for catalogues.

"The Disk Harrow," a book which illustrates and explains the proper preparations of a seed bed, and gives examples of the value of disking—32 pages of valuable information—is yours for four cents to cover postage and packing. Write for it.

International Harvester Company of Canada, Ltd.
BRANCH HOUSES
At Brandon, Calgary, Edmonton, Estevan, Hamilton, Lethbridge, London, Montreal, N. Battleford, Ottawa, Quebec, Regina, Saskatoon, St. John, Winnipeg, Yorkton





**EWING'S
RELIABLE SEEDS**

Reproduce the Choicest Stock


"Like produces like".

Given proper soil and care, Ewing's Seeds will reproduce, in your own garden, before your delighted eyes, the choice, selected vegetables and flowers from which they themselves grew.

Breeding counts in plants as well as in animals, as Ewing's "pure-bred" seeds have been demonstrating by splendid crops for over forty years.

Start right—plant Ewing's Reliable Seeds—and get the most out of your garden. Write now for our Illustrated Catalogue, and if your Dealer hasn't Ewing's Seeds, order from us direct.

THE WILLIAM EWING CO., LIMITED,
Seed Merchants, McGill Street, Montreal.



34

CENTRAL NURSERIES FOR SATISFACTION



No experiment when ordering from HULL.
Fruit, shade and ornamental trees, Grape vines, Shrubs, Roses, Hedges, Himalaya Berries, St. Riges, Herbert. Fruit till November. Prices right, so are the offers. Send for free priced catalogue. Let us book your order while in Verity—Special prices on Apple trees by the 100, choice early seed potatoes, etc.

Everything from a berry plant to a shade tree.



A. G. HULL & SONS

ST. CATHARINES, ONT.

THE SPRAMOTOR

IS A

Welcome Aid to Practical Growers!

Leading fruit growers and men who have large tracts of row crops under cultivation find the **Spramotor** a big dollar gatherer. It earns its cost the first year. Every year thereafter it keeps up the good work and repays its owner over and over again.



A Spramotor

is the most efficient spraying machine made, because it has twenty distinct patented features to be found on no other make. We have been at the making of spraying machines for over twenty years, devoting all our thought and energy to the perfecting of the **Spramotor**. We manufacture every part that goes into our machines, in order to be sure that each is perfect. Every outfit gets a thorough test under high pressure before being shipped.

FREE

Send us a letter containing some idea of your spraying requirements and we will mail at once full particulars of a **Spramotor** that will do your work to best advantage at the lowest possible cost. We will also

forward a copy of our valuable illustrated treatise on Crop Diseases, WITHOUT CHARGE and without placing you under any obligation whatever.

SPRAMOTOR WORKS

1753 King Street, LONDON, CAN.

Hand Spramotors

are efficient in orchards up to 500 trees, and on the medium-sized farm for spraying potatoes, weed destruction, etc., also for painting. They are moderately priced machines, from \$12 to \$30, yet will do all this work.

We make a bigger range of spraying outfits than any other firm in the world. Prices run from \$6 to \$350, each and every machine guaranteed.

Transportation Problems*

C. E. Mcintosh, Forest, Ont., Transportation Agent,
Ontario Fruit Growers' Association

ONE outstanding fact in regard to express rates is this—while the Dominion Express Co. has running rights over practically two-thirds of the railway mileage in Canada, some of our most extensive fruit districts are served only by the Canadian Express Co., and these shippers are compelled to pay rates greatly in excess of those from non-competitive points.

To outline just how this affects the shipper from a non-competitive point, take, for instance, shipping points in the Niagara Peninsula, west to Berlin, north to Streetsville, the local commodity express rate on fruit to Winnipeg is \$2.65 per 100 lbs. From the Leamington and Essex district and from Sarnia and other points where two express companies operate, the rate is \$2.90. Exclusive points, however, have been paying enormously high rates, such as from Forest, where only the Canadian Express Co. operate, twenty-three miles less haul than from Sarnia, the rate was \$4.20. This was brought to the attention of the Express Co. officials, and they issued a tariff June 7th, 1913, allowing these exclusive points the \$2.65 or \$2.90 rate plus 30 cents in the former and 35 cents per 100 lbs. in the latter instances. There are many complaints of high express rates to points within the province; but this matter has not yet been presented to the Express Companies.

REFRIGERATOR CAR REQUIREMENTS

An effort was made to get an estimate of refrigerator cars that the fruit shippers would require last fall, at the different shipping points, with a view to supplying the different railway car distributors with the requirements for each division, between certain dates. I regret to say only thirty-three shippers responded to our request for the information. These were, however, compiled and sent to the proper officials, from whom a reply was received stating information was of great assistance in arranging for the supply. I have reason to believe the greater portion of these thirty-three shippers requiring 692 cars, between October 24th and November 10th, received much better service than they would otherwise have received. With this information the railways could better estimate their requirements, and they had promised to cooperate with us in an effort to improve the conditions of last year. The shippers were not mindful of their own interests in this matter, but I hope when occasion again demands they will be prompt, and be more unanimous in their response.

L. C. L. FREIGHT SHIPMENTS

Another matter of a monetary benefit to some fruit shippers in some districts was an arrangement made with railway representatives, whereby L. C. L. shipments were carried on freight rates instead of by express on the same train. For instance, in the Lambton district, the shippers at Forest and Thedford were shipping to Stratford at an express rate of 50 cents a 100 lbs., and London, 60 cents a 100 lbs. on a mixed train. It was my privilege to take this up with the divisional agent at Stratford, and he consented to placing a car for 6,000 lbs. minimum at a rate of

*Extract from a report presented at the last annual meeting of the Ontario Fruit Growers' Association.

EXPERIMENT on ONIONS conducted by
Geo. S. Chapman, Lorne Park, Ont.



Fertilizers Applied Per Acre		Plots I	II	III
Muriate of Potash	-	160 lbs.	500 lbs.	500 lbs.
Acid Phosphate	-	200 lbs.	200 lbs.	200 lbs.
Nitrate of Soda	-			

GERMAN POTASH SYNDICATE, 1102-6 Temple Bldg., TORONTO, ONT.

Order Your **POTASH** At Once

The Potassic and Phosphatic Fertilizers should be applied as soon as the land is workable.

Many disappointments with fertilizers are due to the fact that they have been applied too late for the crop to get full benefit from them in the first season. Remember that fertilizers are not used up in the first season, but are effective for several seasons. Nitrate of Soda should generally be applied as a top-dressing at planting time. Slower acting Nitrogenous fertilizers can be applied earlier with the other materials.

Muriate of Potash and Sulphate of Potash

can be obtained from the leading fertilizer dealers and seedsmen.

Write for our Free Educative Bulletins, which include:

- "Artificial Fertilizers; Their Nature and Use"
- "The Farmer's Companion" "Fertilizing Orchard and Garden"
- "The Potato Crop in Canada"
- "The Principal Potash-Crops of Canada" etc.

This Spray Book Free!

A practical book of working instructions. Tells how and when to spray. Explains how to select the right mixtures for certain pests, how to treat insects and fungous growths, how to prepare, what strength to use, how to apply, which type of sprayer. Forty pages of the very information you want to increase your crop yield 25 to 75 per cent. We send it free. Write to-day.

Goulds Reliable Sprayers

are more durable, more practical than cheap outfits which only last a season or two. That is why 400,000 orchardists and gardeners have chosen Gould's Sprayers. They never clog, are easily cleaned and spray most uniformly. Before you decide on any sprayer, find out about Gould's improved methods. It will save you money and trouble.



Send for the book to-day. It tells you about every type of sprayer, from small hand outfit to big power pumps. (19)

THE GOULDS MFG. CO.

Largest Manufacturers of
Pumps for Every Purpose

17 W. Fall Street, Seneca Falls, N. Y.

Greenhouse Glass

We manufacture a special line for greenhouses. It is of good quality, flat, squarely cut and even thickness, virtues which cannot be dispensed with for lapping or butting.

Shall be pleased to quote prices on application to any of our Canadian depots:

MONTREAL
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Peerless Ornamental Fencing accomplishes two great purposes. It beautifies your premises by giving them that symmetrical, pleasing, orderly appearance, and it protects them by furnishing rigid, effective resistance against marauding animals, etc.

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is made of strong, stiff, galvanized wire that will not sag. In addition to galvanizing, every strand is given a coating of zinc enamel paint, thus forming the best possible insurance against rust. Peerless ornamental fence is made in several styles. It's easy to erect and holds its shape for years.

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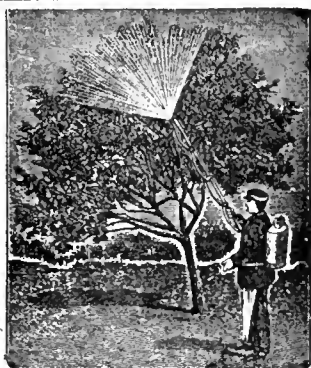
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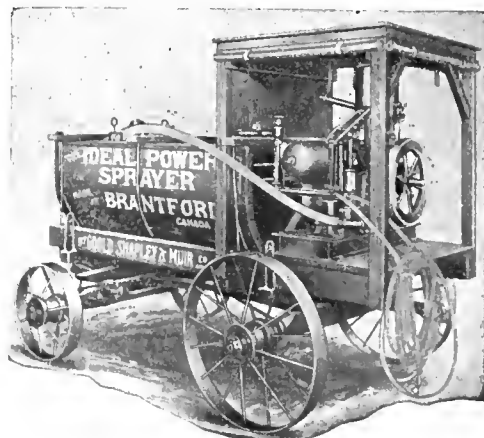
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Catalogues describing our different lines, sent on request

GOOLD, SHAPLEY & MUIR CO. Ltd., Brantford, Ont.

22 and 24 cents respectively. The service was used to good advantage because the shipper or shippers did the handling, received the same despatch, and saved 28 and 26 cents a 100 lbs. respectively on their shipments.

Where similar conditions exist, if shippers would report to the committee or myself, it would receive attention.

These are some of the matters which received the attention of the Transportation Committee and myself during the past year. The concessions granted have been made possible by your assistance in furnishing records, and just here may I express the necessity of keeping the records asked for from time to time by circular. The power under which your committee can work successfully is in your hands. We must have these facts well substantiated; it only remains, then, for you to make this keeping of records one of the first things attended to on each shipment. I want to assure you that railway companies are beginning now to realize that the Ontario Fruit Growers Association is a body alive to their rights, and can substantiate a request with something behind it. Evidence which you shippers can produce will demand a hearing at any time, and I sincerely hope if this work continues your committee will have the co-operation of every shipper in the province.

The Brown Tail Moth

In an open letter published in some of the Nova Scotia papers, Dr. C. Gordon Hewitt, Dominion entomologist, deals with the Brown Tail Moth infestation in that province in part as follows:

The serious character of this insect as a pest of fruit and shade trees, and as cause of physical discomfort and possible illness owing to the poisonous nature of the hairs of the caterpillar, needs no emphasizing, as most of our readers will be acquainted with the experiences of the New England States in regard to this insect and the Gipsy Moth.

The Dominion and Provincial Departments of Agriculture are making every possible effort to keep the insect in check by collecting the winter webs or nests on the trees, each of which webs contains on the average about two hundred and fifty young caterpillars. On this work a body of ten inspectors employed by the Dominion and Provincial Governments, is engaged, and they are covering the whole of the infested territory. Owing to an enormous flight of moths which were blown across the Bay of Fundy from Maine in July, 1913, the infestation has been very greatly increased. With the annual increase of the infestation in Maine we may expect a recurrence of such a re-infestation by wind-carried female moths in the future, and it is therefore more than ever necessary to call the attention of the owners of orchards and trees to the requirements of the law in this regard.

The conditions in Nova Scotia are such as to demand the strict observance of the law. While the respective governments are leaving no stone unturned, the duties of their officers are to inspect, and the fact that they are collecting the webs on infested premises does not relieve the owners of such premises of the necessity of conforming with the regulations, and taking steps to eradicate the Brown Tail Moth when the same occurs in their premises.

Orders have been issued to the inspectors to instruct the owners of properties on which the Brown Tail Moth has been found in any abundance to spray their trees thor-

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A SPECIAL FORMULA FOR EVERY REQUIREMENT.

Do not buy a "A Pig in a Poke."

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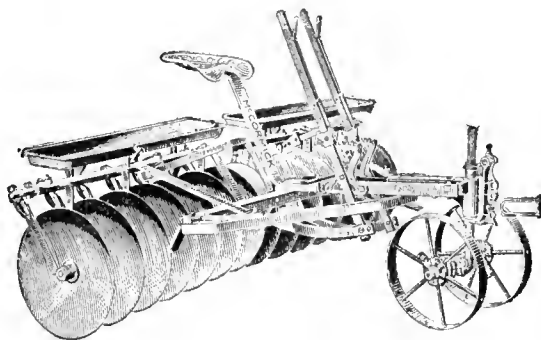
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The IHCLine GRAIN AND HAY MACHINES

Binders, Respers
Mowers
Rakes, Stackers
Hay Loaders
Hay Presses

CORN MACHINES
Plasters,
Binders, Cultivators
Ensilage Cutters
Shellers, Shredders

TILLAGE
Combination,
Peg and Spring-Tooth,
and Disk Harrows
Cultivators

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THIS year ten disk harrows will be sold where one was sold five years ago. Why? Because so many farmers have learned that the proper use of a disk harrow is the best guarantee of a successful crop.

Proper use of a disk harrow means the purchase of a McCormick disk harrow because they are the ones built to do the best work. The frames are strong, to stand the strain of following the binder or of disking hard ground. The set levers keep the gangs to their work at even depth. The bearings are the most durable that can be put on a disk harrow.

The full line includes disk, peg tooth, and smoothing harrows, drills and cultivators. See this line before you buy. We send catalogues on request.

"The Disk Harrow," a book which illustrates and explains the proper preparation of a seed bed, and gives examples of the value of disking—32 pages of valuable information—is yours for four cents to cover postage and packing.

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Our new Seed Catalogue is larger and better than ever before. Contains everything in seeds, bulbs, small fruits and plants worth growing. 120 illustrations; 120 pages. Any gardener sending his name on a postal card can have it for the asking.

SEND FOR IT TO-DAY.

Send 15 cents (stamps) and we will enclose in the catalogue a packet of our **GIANT PANSY**.

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No. 4 Planet Jr Combined Hill and Drill Seeder, Wheel Hoe, Cultivator and Plow

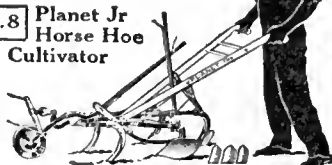
A practical time, labor, and money saver for the family vegetable garden and market gardener. Sows all garden seeds in drills or hills. Plows, hoes, cultivates.



No. 11 Planet Jr Double Wheel Hoe, Cultivator, Plow and Rake

The greatest cultivating tool for the grower of garden crops from drilled seed. It has steel frame. Light enough for woman's use. A favorite with onion growers.

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The best-known cultivating implement made. Strong, yet light. Cultivates to any depth and adjusts to any width. Has new steel wheel.

Don't Feed the Soil — Feed the Plant

In the top eight inches of average soil there is enough plant food in the form of nitrogen to last for 90 years, in phosphoric acid for 500 years and in potash for 1000 years.

And yet that very spot may prove barren. Plants have to take up their food in solution, in the "sap of the soil." All this food may be locked up so tightly by nature that the plants can't get at it fast enough for the commercial farmer, and he has to put in the same food in the soluble form of fertilizer.

Just so, a fertilizer may, by analysis, have all the necessary elements and yet not give the plant full value because these elements are not ready soluble.

Put into your ground a fertilizer that will feed not your already overstocked soil but your hungry crops with food which is available and easily absorbed.

Bowker's Fertilizers

have chemically correct elements—there is a brand to fit every need. More than that, these chemicals are blended and mixed so that they are rendered water-soluble and go into your ground in the most available form. Most crops do most of their feeding in 60 days.

Write for our illustrated catalogue, based on forty years of experience. In writing, state what your crops are.

BOWKER FERTILIZER COMPANY
43 Chatham Street, Boston, Mass.

Exterminating the Scale*

Prof. W. H. Brittain

The work of inspecting orchards for the San Jose Scale, that was continued during 1913, began June 2nd last, and continued throughout the season, with six to ten inspectors employed in the work. Beginning at Windsor, all the orchards as far west as Dibby were inspected. The inspectors were then placed in Hants County and worked eastward into Halifax and Colchester counties. As a result of the inspection fifty-seven trees were found infested with living scale as compared with seven hundred and twenty-three the previous season. Of these fifty-seven, six were the 1911 planting, forty-five of the 1912 planting, and six of the 1913 planting.

In addition to the scale work the inspectors gathered some valuable data as to the number of orchardists who spray and the acreage sprayed, in comparison with the total area. This information has been tabulated according to counties and makes very interesting reading.

Though I would not wish to predict that the San Jose Scale has now been wiped out of Nova Scotia, for such predictions are always unsafe, I can at least safely say, that in no country of which I am aware has this pest after having become so widely distributed been brought so nearly to the point of extermination. Though I do not wish to magnify the seriousness of this pest, and am very far from saying that its establishment in Nova Scotia would sound the death knell of the fruit growing industry of the province, it would increase the cost of production, which is already sufficiently high. It would cost the country, at a conservative estimate, about fifty-five thousand dollars. When you consider that by spending about four thousand dollars a year by the government, we stand a very good chance of keeping it out entirely, you will see that a very large profit accrues to the people.

At present we are concentrating our energy in keeping out all infested trees. We are increasing our facilities at the port of entry so that all incoming stock will be given a searching inspection, in addition to fumigation, before it is allowed to enter the province. Of course we do not have control of the stock coming in from the United States and other country, but I am assured by the Dominion Government authorities that they are taking all necessary precautions. By these methods we hope to keep this pernicious pest forever outside our borders.

Nova Scotia

A four days' packing school was held at Kentville, beginning February 24th, under the auspices of the College of Agriculture, Truro. The local arrangements with regard to all necessary equipments for the work were looked after by Prof. W. S. Blair and staff of the Kentville Experiment Station. Dominion Fruit Inspector P. J. Carey of Toronto had charge of the work. The actual packing of apples in boxes and barrels along modern lines was taken up. Great interest was shown. The attendance was very large.

As a result of the benefits derived from the demonstration, it is intended that packing schools shall be conducted next season at different points all through the valley. More and more box packing will be done hereafter throughout the Valley.

*Extract from an address given before the last annual convention of the Nova Scotia Fruit Growers' Association.

HURST SPRAYERS

Will Make Your Acres Yield **BIGGER CROPS**

Get our Big Free Book, "Why, How and When to Spray." Contains 74 illustrations of insects and fungus diseases and gives the remedy for each. Every farmer, truck- or fruit-grower should have it. Shows a complete line of sprayers—barrel—horse, engine- and man-power for field and orchard.

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A FARMER'S GARDEN

Helps his wife to plan her table in busy times. Saves work and worry, saves buying so much meat, gives better satisfaction to the help. A good garden will be almost impossible in your busy life without proper tools. They cost little and save much hard work.

IRON AGE WHEEL HOES AND DRILLS

will sow, cultivate, ridge, furrow, etc., better than you can with old-fashioned tools and ten times quicker. A woman, boy or girl can do it. Can plant closer and work these hand tools while the horses rest. 38 combinations from which to choose at \$1.00 to \$14. One combined tool will do all of the work. Ask your dealer to show them and write us for booklet, "Gardening With Modern Tools" and "Iron Age Farm and Garden News" both free.

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A revolution in spraying that you should know about.

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New Dry Powdered Arsenate of Lead

represents the greatest development in the manufacture of insecticides. In addition to its superiority over pastes, it is a step in advance of present day Dry Arsenates of Lead in its more finely divided condition, proved by its bulk. Greater bulk means better suspension, hence a more uniform and far reaching spray. One pound of dry will produce the same results as 2 or 3 pounds of paste lead. Write for prices to-day,—we will also send descriptive booklet.



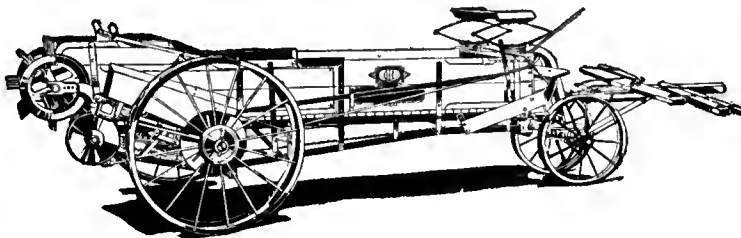
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International Harvester Manure Spreaders



THE I H C LINE GRAIN AND HAY MACHINES

Binders, Reapers
Headers, Mowers
Rakes, Stackers
Hay Loaders
Hay Presses

CORN MACHINES

Planters, Pickers
Binders, Cultivators
Earlage Cutters
Shellers, Shredders

TILLAGE

Combination,
Peg and Spring-Tooth,
and Disk Harrows
Cultivators

GENERAL LINE

Oil and Gas Engines
Oil Tractors
Manure Spreaders
Cream Separators
Farm Wagons
Motor Trucks
Threshers
Grain Drills
Feed Grinders
Knife Grinders
Binder Twine

INTERNATIONAL Harvester manure spreaders have a score of good features in their construction. Each one is the result of careful field experiment.

An I H C spreader is low enough for easy loading, yet it has plenty of clearance underneath. The rear axle is well under the load, rear wheels have wide rims and Z-shaped lugs, insuring good traction under all conditions. Frame, wheels, and all driving parts are of steel. Apron tension is adjusted by a simple device. Winding of the beater is prevented by large diameter, and beater teeth are strong, square and chisel-pointed.

International manure spreaders are built in several styles and sizes, low or high, endless or return apron, for small farms or large. Examination will show sturdiness of construction in every detail. Repairs, if ever needed, may always be had of the local dealer.

Examine International spreaders at the dealer's. We will tell you who sells them, and we will send you interesting catalogues.



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That fertilizers are an absolute necessity to successful farming.

The only question that confronts him is getting the *right* fertilizer.

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are prepared under the supervision of chemical experts—are backed by forty years' reputation, and are guaranteed to be in perfect condition chemically and mechanically.

Gunns' fertilizers are finely ground, insuring an even, easy distribution. For users of our fertilizers we are ready at all times to analyze samples of soils and recommend the fertilizer best suited, making it up especially if necessary.


For fertilizer book and other information, write

GUNNS LIMITED,

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Black
Tan
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White

Best
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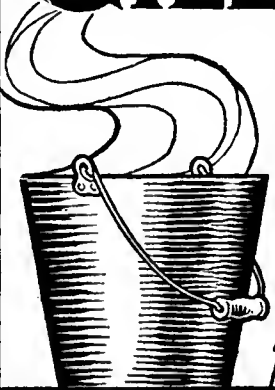


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In new
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"Easy
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Easiest
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GILLETT'S LYE

The Standard Lye of
Canada. Has many
imitations but no equal



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100% PURE



ENGLISH HAND-MADE LACE

MADE BY THE COTTAGERS OF BUCKINGHAMSHIRE.

This is the old-fashioned lace made on the cushion, and was first introduced into England by the Flemish Refugees. It is still made by the village women in their quaint old way.

Our Laces were awarded the Gold Medal at the Festival of Empire and Imperial Exhibition, Crystal Palace, LONDON, ENGLAND, for general excellence of workmanship.

BUY some of this hand-made Pillow Lace, it lasts MANY times longer than machine made variety, and imparts an air of distinction to the possessor, at the same time supporting the village lace-makers, bringing them little comforts otherwise unobtainable on an agricultural man's wage. Write for descriptive little treatise, entitled "The Pride of North Bucks," containing 200 striking examples of the lace makers' art, and is sent post free to any part of the world. Lace for every purpose can be obtained, and within reach of the most modest purse.



COLLAR—Pure Linen.
\$1.00.



DAINTY HANDKIE—70c.
No. 910.—Lace 1½ in. deep.

Collars, Fronts, Plaistons, Jabots, Yokes, Fichus, Berthes, Handkerchiefs, Stocks, Camisoles, Chemise Sets, Tea Cloths, Table Centres, D'Oylies, Mats, Medallions, Quaker and Peter Pan Sets, etc., from 25c., 60c., \$1.00, \$1.50, \$2.00 up to \$5.00 each. Over 300 designs in yard lace and insertion from 10c., 15c., 25c., 45c., up to \$3.00 per yard.

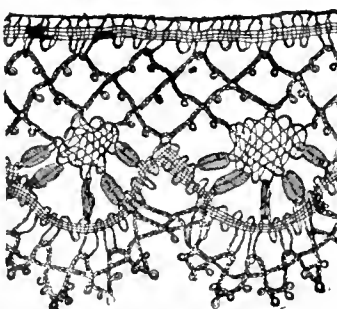
IRISH CROCHET.

Mrs. Armstrong having over 100 Irish peasant girls connected with her industry, some beautiful examples of Irish hand made laces may be obtained. All work being sold direct from the lace-makers, both the workers and customers derive great advantage.

Every sale, however small, is a support to the industry.



(1½ in. deep.) STOCK—Wheel Design.
Price 25c. each. (Half shown.)



No. 122.—80c. per yard.

MRS. HORACE ARMSTRONG, OLNEY, BUCKS, ENGLAND

The Export Trade in Pears and Peaches*

Mr. Harrison Watson, Canadian Trade Commissioner,
London, E.C.

A FEATURE of the autumn fruit trade has been the record supplies of Canadian pears which have come to hand and there have also been several shipments of peaches. Although the extremely high prices realized have been due to exceptional circumstances, there seems to be no reason why a profitable trade should not be maintained in the future.

The well known firm of Messrs. W. Dennis & Sons, Ltd., of Covent Garden Market, who have handled considerable supplies of both Canadian pears and peaches, acceding to my request, have been good enough to draw up a report which reviews the chief features of the trade which have come to their notice, and also contains several practical suggestions. This report is hereby reproduced for the information of Canadian growers and shippers:

"The prospects are promising for a lucrative and extensive business in the future, but the past season being in many respects abnormal, is not a good basis for generalizations as to the future.

HIGH PRICES OBTAINED

"The season for Canadian pears commenced at a very favorable time for the realization of high prices. The English and French crops were practically failures and the sprinkling of Californian and Hudson River pears which had come forward had left the demand unsatisfied. Under these circumstances, we were able to return to the shipper highly satisfactory prices for the first arrivals, and had the fruit continued to come forward in good hard green condition, prices would have been maintained at a high figure for the whole of the season. Unfortunately towards the middle of the season it became apparent that the greater part of the fruit arriving was over-ripe, which state of affairs continued for the rest of the season.

"The early varieties, principally Bartlett's, were in by far the most satisfactory condition on arrival, and the strength of the demand for good pears at the commencement of the season is illustrated by the first parcel of Bartlett's we handled which came forward in barrels and was found to be in excellent condition. These we were able to sell at 50s per barrel for the first grade, and 45s per barrel for the second grade, prices which we believe constitute a record.

"The largest part of the arrivals of Bartlett pears from Canada, however, were packed in half-boxes, which realized satisfactory prices right through, ranging from 6s to 9s 6d, for sound fruit of the first grade, whilst for one parcel of fruit packed in a patent package which we shall hereafter describe, realized 11s per half-box. The half-box averaged in weight about 4½ lbs. gross. Boxes of Bartlett's, for which we realized up to 12s 6d, were only a small proportion of the arrivals.

SHIPMENTS IN BARRELS

"As regards stocks (other than Bartlett's) we cannot report altogether favorably, for whilst very good prices were realized for some parcels of fine hard green fruit, these were few and far between, and most of the arrivals, if not actually wet and running, were too ripe for profitable marketing. Consequently prices ruled lower than the

*From a report to the Department of Trade and Commerce, Ottawa, Ont.

(Continued on page xi)

Roses Roses

Dutch and American. Hybrid Perpetual, World Teas and Climbing. Strong 2 year old-grown bushes that will bloom the first none better, none cheaper.

ALSO

Shrubs, Vines, Perennials

Get Catalogue

A. W. GRAHAM
Thomas - Ontario.

A GREAT
Parcel-Post Offer!
Wonder Working Washer!
Delivered to you for Only \$1.50

A Beautiful Present Free
you order immediately. See Coupon at the bottom.

We are able to make this great offer on account of the great reductions which have been made in the cost of postage.

Here Are a Few of the Reasons Why You Should Buy the Rapid Vacuum WASHING MACHINE.

- 1-It is the only machine that has a valve which is absolutely necessary to create a vacuum, and supply the compressed air, which forces the water through the clothes.
- 2-It is the lightest machine made.
- 3-It has been awarded prizes in washing competitions over \$50 washing machines.
- 4-It will wash the heaviest Hudson Bay blankets in 3 minutes.
- 5-It will wash the finest lingerie perfectly in 3 minutes.
- 6-It will wash tub of anything washable in 3 minutes.
- 7-It will last a lifetime.
- 8-It will save you hours of endless toil.
- 9-It will save you dollars a year by not wearing out the clothes.
- 10-It can be operated by a child as easily as an adult.
- 11-It is as easy to wash with this machine as it is to mash a pot of potatoes.
- 12-It will thoroughly blue a whole family washing in 30 seconds.

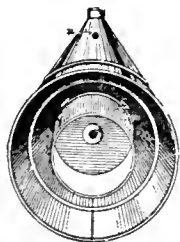
13-It will do everything we claim for it, or we will return every cent of your money.
14-It can be used in any boiler, tub or pail, equally well.
15-After use it can be dried with a cloth in ten seconds. Nothing to take apart. Nothing to loose.
After you own one of these washers the hardest part of your work will be hanging out the clothes. If for ANY reason you are not satisfied with the RAPID VACUUM WASHER we will gladly turn your money.

No more boiling. No more rubbing.
You can throw your washboard away.

FREE—A SILVER TEA SPOON

To every reader of this paper who sends us this coupon and \$1.50 for a Rapid Vacuum Washer within two weeks of the receipt of this paper, we will send along with the washer absolutely FREE, a genuine Wm. A. Rogers Silver Tea Spoon. Also our agent's terms which will show you how you can make \$50.00 a week. Don't wait. Send to-day and the washer and spoon will be delivered to any address postage paid for \$1.50.

Fisher-Ford Mfg. Co., Dept W. 110
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Costs less than 1c. a night
for 300 Candle Power light.

Here is a lamp that is truly a wonder. "The Faultless Lamp" makes its own gas from coal-oil—will produce 300 Candle Power of bright, white light at less than 1c a night. Simple, strong, most beautiful portable lamp.

CANNOT EXPLODE.
CAN BE ROLLED ON
THE FLOOR WHILE
BURNING. REQUIRES
NO CLEANING.

Why sacrifice your eyes with a poor light when the saving of oil alone will pay for a "Faultless" in a short time.

Write for free booklet "M." showing how it works, and giving other valuable information.



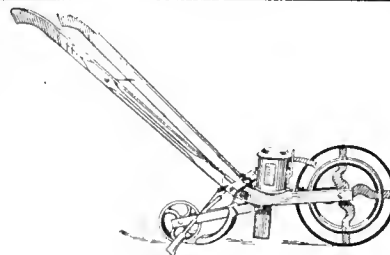
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LAMP

MAC LAREN & CO.
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FRUITLAND NURSERIES

are offering for sale a general assortment of first-class Fruit Trees, Bushes, Vines and Ornamental Shrubs, etc., at very low prices. Our catalogues are just out. It will pay you to send for one.

G. M. HILL, Box 42, FRUITLAND, ONT.



"THE BEST BY TEST"

Garden Seeder

Does the work of two men in half the time. Makes the drill, sows, covers and rolls the seed while you walk.

No better seeder can be built for the fast and accurate sowing of Turnips, Cabbage, Carrots, Beets, Corn and all other garden seeds.

Price \$7.50 delivered at your station.

THE SUSSEX MANUFACTURING CO.
SUSSEX, N. B. Ltd.

STRENGTH-GIVING BREAD

If the men of the house have an extra call on their strength at this spring season they should be fortified for it by having the best of food three times a day.

As bread is the main item of every meal much depends upon its wholesomeness and strength-giving quality. Avoid guesswork by always using

REINDEER FLOUR

The flour that will always produce an appetizing, satisfying and muscle building loaf.

YOUR GROCER CAN SUPPLY IT

PETERBOROUGH CEREAL CO., Simcoe St., PETERBOROUGH, ONT.



CUTS EVERYTHING!

Bread—meat—cooked fish—vegetables—fruit—anything and everything in the food line you put into a

Maxwell

"HOME 65" FOOD CUTTER

is minced to perfection. Here too, is a machine which is quite watertight. No food or juices can escape as is the case with most Food Cutters.

No Food Cutter works so easily or is so reliable as the "HOME 65"

Four cutting plates (or 3 plates and 1 nut grater.)
Tight fitting screw cap.
Machine quite watertight.
Open end cylinder, easy to clean.

Better than any foreign made machine — and cheaper, too!
With every "Home 65" we give a "Food Chopper Cook Book" free.

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LIMITED**

**ST. MARY'S
ONT.**



GLADIOLUS

America, \$1.50 per 100. Taconic, \$3.00 per 100. Express collect. Send for list of other varieties.

H. P. VAN WAGNER

R. R. NO. 5 HAMILTON, ONT.

STRAWBERRY PLANTS

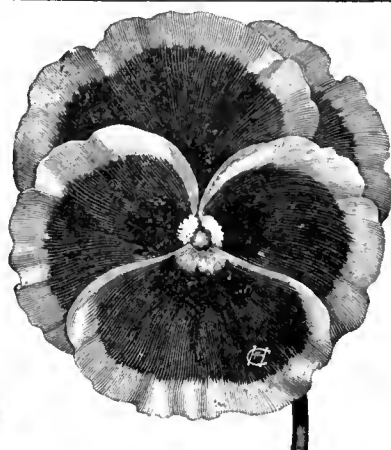
Williams Improved. Parson's Beauty, Splendid, Sample Fountain, Stevens. Champion, Senator Dunlap and other leading varieties. Write for catalogue and price list.

W. WALKER - PORT BURWELL, ONT.

ROSES

11,000 splendid Hybrid Tea Rose Bushes, mostly two year old, will be ready for delivery about June 1st in the following varieties: White and Pink Killarney; Richmond (red); Hillingdon (yellow); Canadian Queen (pink); American Beauty (dark pink). Plants will have splendid roots and will make first-class summer bedding stock. We are offering this stock at the following very attractive prices to clear out quickly: \$10.00 per 100 on orders of not less than 25. Write for special prices on large quantities. Orders will be booked in the order in which they are received. Cultural instructions will be sent with every order.

THOS. A. IVEY & SON, LTD., PORT DOVER, Ont.

**D. & F's HIGH GRADE VEGETABLE SEEDS**

BEAN—A new, stringless, wax bean of great merit. Early, hardy, stringless, rust-proof and exceedingly prolific. Pkt. 10c, ½ lb. 20c, 1 lb. 30c.

BEAN—Stringless green pod. First introduced nineteen years ago. Still unequalled. Pkt. 10c, ½ lb. 15c, 1 lb. 20c.

BET—Bobbles Selected Globe. The best of the Turnip-rooted class. Pkt. 10c, oz. 40c.

CABBAGE—Copenhagen Market. Early as Jersey Wakefield and half again as large. Pkt. 10c, ½ oz. 30c, 1 oz. 50c.

CORN—Golden Cream. Very early, very sweet and juicy. The best for home garden. Pkt. 10c, ½ lb. 20c, 1 lb. 35c.

CUCUMBER—D. & F's extra long white spine. The most beautiful and best long green. Pkt. 10c, oz. 50c.

LETTUCE—D. & F's Peerless. Most distinct and largest solid cabbage lettuces. Pkt. 10c, oz. 30c.

LETTUCE—Wayahead. Earliest and most solid of all early lettuces. Pkt. 10c, oz. 20c.

ONION—Cranston's Excelsior. Unsurpassed for exhibition purposes. Pkt. 25c.

PEA—World Record. Two weeks earlier than Gradus. Pkt. 10c, ½ lb. 30c, 1 lb. 50c.

RADISH—White Icicle. Easily the best of all early white "Lady-Finger" Radishes. Pkt. 5c, ½ oz. 15c.

TOMATO—D. & F's O.K. The best early bright red tomato. Pkt. 15c, ½ oz. 75c.

D. & F's Exhibition Spencer Collection of Sweet Peas

Sometimes it is difficult for the amateur to intelligently select the best varieties of sweet peas from the seedman's list. The following names with their descriptions will be helpful:

King White, pure white; Clara Curtis, waved primrose; Elfrida Pearson, rose; Margaret Atlee, cream pink; Countess Spencer, select stock, large blush pink, waved; Thomas Stevenson, orange pink; Stirling Stent, orange salmon; Vermillion Brilliant, scarlet; Maud Holmes, crimson spencer; George Herbert, orange pink, deep rose wings; Nubian, chocolate; Margaret Madison, pale lavender; Asta Ohan, deep lavender; Tennant Spencer, purplish mauve; Elsie Herbert, blush white, picotte edge; Apple Blossom Spencer, waved rose and blush; Afterglow, bright violet blue; America Spencer, bright blood-red striped.

Special collection offer: one packet each of the above 18 varieties, \$2.75

Send a postal for our new 1914 catalogue, the finest and most complete, listing only high grade seeds.

DUPUY & FERGUSON

38 JACQUES-CARTIER SQUARE

MONTREAL, QUE.

Fruit Markets of the Future

The European representative of United Fruit Companies of Nova Scotia Limited, Mr. John N. Clute, in a recent letter to that company, reported in part as follows:

I am of the opinion that the development of our fruit industry should be along a line of quality rather than quantity. Within the next decade or two there will be strong competition in the fruit trade. England, with her cheap supply, and Oregon and other western states with their superior class of apple, will both be strong competitors with us for the English market. We must not disguise the fact that the planting of orchards within the last few years has been out of proportion to the previous period, and out of proportion to the development of the markets.

In England not only has the plant been extensive, but growers have adopted more scientific methods of caring for and marketing their fruit. I was forcibly impressed with this when attending the fruit show at Maidstone this year. Although only their third annual show, there was a display of fruit that would do credit to our country. One thousand two hundred boxes of apples packed in scientific western style were arranged in a most attractive manner. There was also on show one hundred and forty-four barrels of apples. There was more competition in the Brambley Seed than any other variety. The particular object of the show was to encourage packing apples for export. England has a large and growing export trade in apples to South America.

With these facts in regard to our competitors fairly before us, we must educate ourselves in the very best manner possible to meet the conditions. We must produce fruit of the best quality, handle it carefully, and pack it honestly and systematically. It must be put on the market in the very best condition possible, and that at the least possible expense.

There is too much difference between what we receive and what the English consumer has to pay. If we wish our trade to increase sufficiently to take the increased supply we must put in operation a system by which our apples can be produced by the consumer as cheaply as oranges or bananas. I am pleased to say that United Fruit Companies have a scheme whereby expenses can be so reduced that the consumer can buy more cheaply at the same time we, as growers, will receive more money for our fruit.

Recent bulletins and circulars that have reached The Canadian Horticulturist include the following: Bulletin No. 241, issued by the Agricultural Experiment Station, Berkeley, Cal., entitled "Vine Pruning in California." This bulletin is well illustrated, and deals among others with the grape vine. Bulletin No. 171 is being distributed by the Agricultural Experiment Station at Lafayette, Ind. It is entitled "The Vegetable Garden." Vegetable growers will do well to obtain a copy of "Peach Leaf Curl" and "Apple Growing in New Jersey" are the titles of two circulars Nos. 29 and 30 respectively, being distributed by the New Jersey Agricultural Experiment Station.

Too many fruit growers forget that spraying done at the proper time is much more good than two or three sprays done at other times.—H. K. Rea, Northumberland Co., Ont.

Market Gardeners

It will pay you to look carefully over our Price List of

SEEDS

Ask for Special Prices on Garden Peas and Seed Corn.

Our Seeds will POSITIVELY, ABSOLUTELY, give you satisfaction.

Write us about your wants

Geo. Keith & Sons

Seed Merchants since 1866

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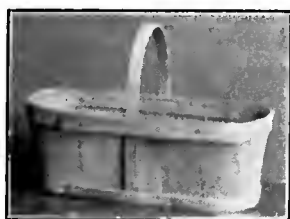
SPRAYERS Are a Necessity and a Benefit.

Outside Pumps, Bronze Ball Valves, Hemp Packing. Easy to get at.

IRON AGE



Peerless Climax Fruit Baskets



Heaviest, Strongest and Best

In the market. Especially suitable for long distance shipping. Last year the demand exceeded the supply

Therefore Order Early

Canadian Woodenware Products Co.

ST. THOMAS, ONT.

BEZZO'S FAMOUS PRIZE ASTERS

Prizes New York State Fair, Canadian National Exhibition, Toronto; Berlin Horticultural Society, 1910-11-12-13.

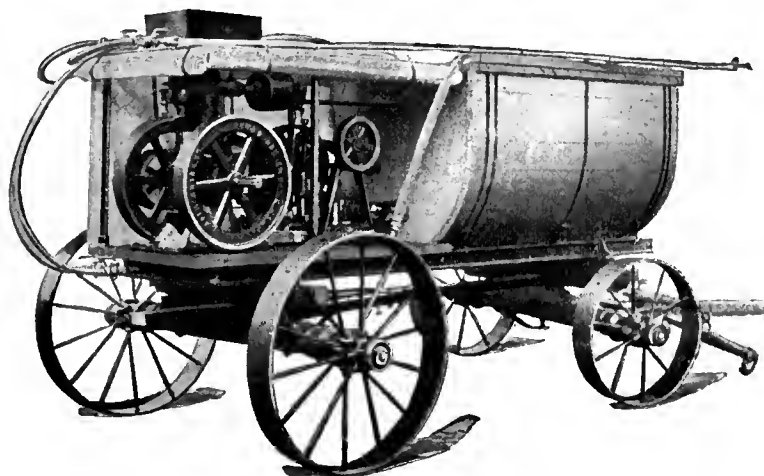
Violet King, Rose King, Royal White, Royal Lavender, Royal Pink, Royal Purple, Rochester Pink, Peerless Pink, Salmon Pink, Improved Crego Pink, Queen of the Market White or Pink, Branching White, Rose, Pink, Lavender, Crimson, Mikado White. These are very truly the aristocrats of the Aster family. All plants sent by Express (unless otherwise arranged) to any part of Canada and guaranteed to arrive in good condition. Price, \$1.00 per hundred, packed and labelled separately in wet moss. Express prepaid on orders amounting to more than \$2.00. Special prices to Horticultural Societies. All plants sold frame (not hot-bed) grown, and with favorable weather will be ready last week in May. Order early as the quantity is limited.

C. MORTIMER BEZZO

BERLIN, CANADA

"The Hardie Power and Hand Sprayers"

The Sprayer that is free from Experimental Risk
OVER 6,500 IN USE



"The Sprayer" (you are looking for) "With The Trouble Left Out"

CONSIDER WELL THE HARDIE FEATURES

SIMPLICITY OF CONSTRUCTION — Obtained by leaving out everything of a complicated or troublesome nature and using only such construction as experience has proven best.

STRENGTH — The liberal use of high grade steel and the use of metals which will stand the wear and tear of high pressure work.

BIG CAPACITY — Our pumps are properly designed and built by "sprayer specialists." We know the importance of lots of liquid at the nozzle and build accordingly.

HIGH PRESSURE — We use a powerful engine on our machines and our pumps are so light-running that high pressure can always be obtained.

LIGHTNESS — By the use of a high carbon pressed steel frame we get strength and long service.

FROST-PROOF ENGINE — We use the Ideal engine. It is compact, strongly built and reliable. Plenty of power and always ready to run.

PRESSURE REGULATOR — A simple, reliable device to control the pressure. There is no load on the engine when the stopcocks are off.

LITTLE THINGS — Stay-There hose ends which cannot be blown or pulled off. Angle cut-offs, a decided improvement over the old style stopcock. Hose, the kind that gives you the service you desire.

Whether your orchard is large or small there is a Hardie Sprayer to fill your requirements, assuring you spraying success, with a

**Hardie Hillside Triplex
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HARDIE HAND PUMPS — The world's best, so simple that the only tools required to keep them in perfect working order "are a box and a monkey wrench."

There are now in use nearly 30,000 Hardie Hand and Power Sprayers. Our prices are lower than other machines of like specifications. Take advantage of our large output and the Sprayer Pump Value **BUY A HARDIE.** Write for our catalogue giving which you will receive, and mechanical details of our full line.

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BURLINGTON, ONTARIO LTD.

Florists, Gardeners, Fruit and Vegetable Growers

If you are contemplating building

GREENHOUSES OR CONSERVATORIES

We advise you to build right, provide against wind storms, save all your stock from destruction and yourself from worry, produce and work under a glass roof that will insure your labours and crops, get PARKES MODERN GREENHOUSES.

We also supply and manufacture

SHELF BRACKETS, PIPE CARRIERS, SPLIT TEES

GREENHOUSE WHITE PAINT, PUTTY and GLASS and all kinds of GREENHOUSE HARDWARE, HEATING and WATER SUPPLY SYSTEMS.

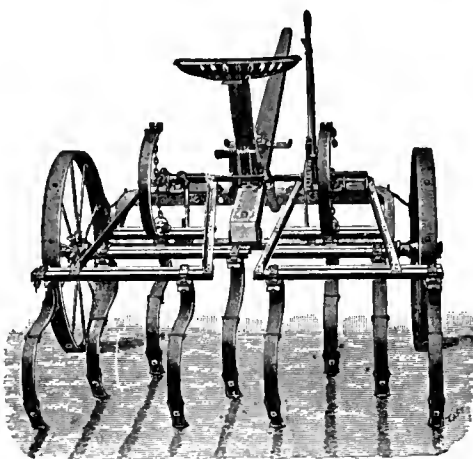
If you want a good addition to your greenhouse get a line on our **IDEAL SHELF BRACKETS**

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Long Distance Phone 6102



Implements for Orchard and Vineyard

Spring-Tooth Harrows

Spraying Outfits

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Cultivators

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etc.

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Agencies Everywhere

The fruit grower requires suitable implements if he is to be successful.

The manufacturer with a knowledge of the requirements is in the best position to supply the demand.

Our experience extends back for well over half a century and our implements are in successful use in orchards and vineyards in many lands.

Catalogues and full particulars from any of our agents or by writing our nearest Branch.



The Brown Tail Moth

(Continued from page 114)

oughly with a spray solution containing not less than two pounds of arsenate of lead (the arsenate of lead is to contain not less than fifteen per cent. of arsenic oxide) every forty gallons of water after the leaves appear and before the blossoming of the trees. The spraying is to be carried out in a satisfactory manner, and all cases in which the instructions have not been carried out will be reported by our officers in charge to the Department.

Those fruit growers who are accustomed to spray thoroughly and at the proper time need fear no defoliation or trouble, but in their interests to cooperate with the Dominion and Provincial Departments of Agriculture in seeing that the less progressive persons carry out the necessary requirements.

Pre-cooling Advocated

At a recent meeting of the directors of The United Fruit Companies of Nova Scotia, Limited, Mr. Davidson representing the Fallmouth Fruit Company, presented an indirect argument in favor of the pre-cooling plant it has been proposed to establish for the benefit of Nova Scotia fruit growers.

Mr. Davidson stated that this year's management of the United Fruit Companies would have to place some ten thousand barrels in cold storage at St. John. It has been proved that the cost of having stuff held in St. John is about fifty cents per barrel, or in round figures, five thousand dollars.

Commenting on this statement Mr. A. Adams, the manager of the United Fruit Companies, writes as follows: Five thousand dollars to have ten thousand barrels stored under the very worst conditions possible, but even then well expended, because it would keep that quantity of fruit off the market when the market was at the low point. Yet when that five thousand dollars was expended there would be nothing to show for it beyond the immediate benefit derived.

"How much better and how much more business like it would be to expend five thousand dollars towards the equipment of a plant right here in the Valley, which would accomplish even better immediate results. The fruit being handled under much better conditions and immediately after coming off the trees, would arrive on the market in much better shape, and that reason realize bigger money. In addition, we would still have a plant for similar operations in succeeding years. This sound argument which we commend to the consideration of those who are not already convinced that cold storage or pre-cooling is absolutely essential."

Item of Interest

Members of the Port Arthur Board of Trade recently entertained Mr. Arthur Sitch, of Hymers, an agricultural distributor to Port Arthur, in honor of having established a record production of potatoes of four hundred and twenty and one-half bushels for an acre. Competition was open to the province. Mr. Sitch received as a reward a course at Guelph Agricultural College. The establishment of an experimental farm in the Port Arthur district is being recommended.

Export Trade in Pears and Peaches

(Continued from page 118)

and for good pears would seem to war-
The reason assigned for this over-
condition by competent authorities
ld appear to be the very wet weather
perienced whilst the fruit was on the
s, which is considered to have militated
inst the keeping qualities and vitality
the fruit. However that may be, it is
ain that warm weather whilst the fruit
in store or in transit must have been
determining factor of its condition on
val here, and the demand being what
as, it was a mistake to have shipped a
le package across the water in ordinary
vage. On the other hand, many parcels
ch came forward in refrigerator on the
mer were in over-ripe condition on ar-
l, which we consider to be due to them
ing been stored for several weeks before
ment in ordinary storage. At the be-
ing of the season the weather is too
m for the efficient transport of pears in
nary stowage, and later in the season
r keeping qualities are likely to be
aired.

The great bulk of pears in barrels were
fers, but there was a fair sprinkling of

Ploughs—Wilkinson

TRADE MARK
REGISTERED
U.S.S. Soft Centre Steel Moldboards, highly
tempered and guaranteed to clean any soil.
Steel beams, steel land sides and high carbon
steel coulters. Clevises can be used either
stiff or swing. Each plough is fitted espec-
ially with its own pair of handles—rock elm,
long and heavy and thoroughly braced. The long body
makes it a very steady running plough. Shares of all
widths—specials for stony or clay land. The plough
shows turns a beautiful furrow, with minimum draft
and narrow furrow at finish. Ask for catalogue.

The Bateman-Wilkinson Co.,
Limited
461 Symington Ave.,
Toronto Canada.



Onion Growers

Do you intend to have any weeds in your
ons this year? If so, ask me for litera-
e which describes a machine that will
arate the weeds from the onions, prac-
lly doing away with most hand weeding.
on't delay. Act quickly if you want to
ire a weeder this season.

G. Bruner, Manufacturer
OLINDA, ONT.

First-Class Commercial Gardeners Wanted

A few good market garden properties for sale or rent. Locations
good, prices and terms attractive. Cheap natural gas for green-
house fuel. Write for details to

O. PATTERSON FARMER - Jeannette's Creek, Ontario

International Harvester Cream Separators



THE I H C LINE GRAIN AND HAY MACHINES

Binders, Reapers
Headers, Mowers
Rakes, Stacks
Hay Loaders
Hay Presses

CORN MACHINES

Planters, Pickers
Binders, Cultivators
Ensilage Cutters
Shellers, Shredders

TILLAGE

Combination,
Peg and Spring-Tooth,
and Disk Harrows
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GENERAL LINE

Oil and Gas Engines
Oil Tractors
Manure Spreaders
Cream Separators
Farm Wagons
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Threshers
Grain Drills
Feed Grinders
Kills Grinders
Binder Twine

A DAIRY farmer who does not use
a cream separator is losing up to
\$15 per cow per year. Complete your
dairy equipment by the purchase of an
International Harvester cream separator—Lily,
Bluebell or Dairymaid. These separators skim
closely—leaving barely a drop of cream in a gallon
of milk—and they will do it for years.

These machines are furnished with pulleys for the
use of power. Belted to a small I H C engine, you
have the best outfit it is possible for you to buy.
Note the low supply can on I H C separators, the
height of the milk spout which allows a 10-gallon
can to be used for the skim milk, the strong frame
with open base which can be kept perfectly clean,
and the dozen other features which make these
I H C machines the best.

Your local dealer should have one of these ma-
chines on sale. If he has not, write us before you
buy and we will tell you where you can see one;
also send you an interesting book on separators.



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Our "XXX" Vegetable, Clovers and Timothy Seeds
are approved by the Dominion Government for Purity
and Germination. Ask your dealer, or write direct
for catalogue.

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Potato Profits

depend largely on how the crop is planted. Every skipped hill is a loss in time, fertilizer and soil. Every double wastes valuable seed. It means \$5 to \$50 per acre extra profit if all hills are planted, one piece in each. That is why

IRON AGE 100 Per Cent Planters

often pay for themselves in one season on small acreage. They also plant straight, at right depth, 12 to 24 inches apart. With or without fertilizer distributor. Ask your dealer to show you this Planter and write us for booklet, "100 Per Cent Potato Planting" and copy of Iron Age Farm and Garden News.

The Bateman-Wilkinson Co., Limited, 465 Symington Ave., Toronto, Can.



BLACK CURRANTS

Why not Plant a Large Patch this Spring

We still have a few thousand first-class plants of the **BLACK NAPLES** variety. Very hardy and prolific.

Ask us for prices on **LAWTON BLACK-BERRY** Plants. Write to

J. E. HENRY & SON - WINONA

Mention The Canadian Horticulturist when writing.

You Need this BOOK!

It's packed full of information that will prove helpful to you in the planning and planting of your garden. Information that's worth dollars—just a plain simple story of the best methods to pursue. Tells when to plant, how to plant and what to plant. Your copy is ready, drop us a post card now, you will get one by return mail.

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TESTED SEEDS
TRUE-VIGOROUS-RELIABLE



Protect your trees and garden

A Fairbanks-Morse Spraying Outfit offers you the most effective and economical means of destroying insects and of curing and preventing plant and tree diseases.

The spraying machine illustrated here can be used for practically every spray use on any farm, and will quickly pay for itself in improved crops.

You can buy a Fairbanks-Morse or Gould Spraying Pump, from a brass hand pump costing a few dollars up to an engine-operated, truck-mounted outfit of the highest efficiency.

Send for free catalogue of spraying outfits and appliances. It contains much valuable information, tells you what to spray, what chemical compounds to use, how to prepare them, when to do the spraying, etc. We are the largest Canadian dealers in farm engines, scales, and mechanical goods of every kind.

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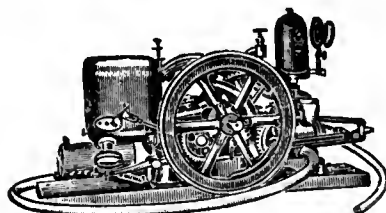
The Canadian Fairbanks - Morse Co., Limited

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Winnipeg
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Canada's Departmental House for Mechanical Goods



Duchess, Anjous, Seckle, Louis Bon, Clargau, etc., which are subject to the same remarks. Barrels of Keiffer pears realized from 15s to 28s for the first grade of sound fruit according to quality, condition, and the fluctuations of the market. Duchess pears ranged from 25s to 45s, Anjous 20s to 26s, Seckle 26s to 42s. In addition to barrels of Keiffers, we also handled a good number of boxes and half-boxes. Prices for boxes ranged from 5s to 6s 9d, and for half-boxes from 3s 6d to 4s for first grade fruit. It must be considered that the prices quoted are very satisfactory, but when taken in conjunction with the large proportion of rotten fruit which did not realize the cost of marketing, etc., the net result cannot be considered in so favorable a light.

PEACHES SATISFACTORY

"We had a few half-boxes of Canadian peaches, with 36 to 48 fruits each, which sold at from 9s to 11s per package, which must be considered to be a very highly satisfactory result. We think there should be a good business in these rather lower prices for the future.

"As regards barrels, we consider the Canadian packing to be superior on the whole to that of other countries exporting to this market. The barrels are larger containing some 180 lbs., of fruit average whilst the use of eight hoops round the barrels which the best Canadian packers use, two at each end and four in the middle should be made general, when the proportion of slack-packed fruit which so extensively diminishes growers' profits would be greatly reduced. The half-box package for the package for Bartlett pears, and we think it could be used with advantage for other varieties.

"We have mentioned that we had a parcel of half-boxes of Bartlett for which we realized 11s per package. The package used was a patent one, of which the lid fitted into a groove at each end, which groove was made in the size of a wooden clamp fastened to the edge of each of the end pieces. When the lid had been so fitted it was secured by a strip of wood nailed above it to the inside of each clamp. The clamps thus stood higher than the lid, and when the boxes were piled above one another in tiers, the top box rested upon the clamps of the box below and the whole weight of the boxes was thus borne by the end-pieces, edgewise, instead of being borne by the bulge of the lid, thus cutting and bruising the fruit. If this package could be generally used, the value of the fruit when it reached the market would be enhanced by several shillings per package.

"We also notice that various growers did not wrap all the pears in each box, but contented themselves with wrapping the top layer only. There is no utility in this, the pears should each be wrapped in the growers' printed paper, or otherwise it is cheaper to wrap none, as buyers will not pay the price of wrapped fruit for boxes, the contents of which are largely unwrapped.

FRUIT TO ARRIVE IN GREEN CONDITION

"The lesson of the past season, as others, is that expense should not be spared in order to get the fruit here in hard green condition, which if accomplished will surely reap its reward in greatly increased prices; over-ripe fruit, i.e., fruit too ripe to stand during the period of reaching the ultimate consumer, has only a small chance of paying for its cost of marketing, and very great chance of being thrown away a valueless, if market and weather conditions are against it; there is no margin for salesmanship in the handling of such fruit.

Superior Golden Queens

that produce workers for honey. The gentlest bees on the earth to handle and the yellowest. Untested, each \$1.00, six \$5.00. Tested, \$2.00 to \$3.00. Breeders, \$5.00 to \$10.00.
J. R. BROCKWELL, BARNETTS, VA., U.S.A.

FOR SALE

Apiary, in first-class condition; Grey County, 2½ mile from Tara.
110 hives of Bees, good strain of hybrids, no blacks. 250 supers of drawn comb, also winter packing cases; 8 ft. board fence surrounds yard. Price, \$1,200. Good reason for selling. Write for particulars.
J. H. DUNCAN TARA, ONT

Are you ready to spray, when the petals fall?

The young larvae of the codling moth enters the blossom end of the apple soon after the petals fall. A drop of



Neutral Arsenate of Lead

in the calyx cup before the lobes close, prevents the worm from entering and saves the fruit. This Arsenate is not only perfectly safe in use, but owing to its finely divided condition, it stays better in suspension, covers more foliage and sticks to it better than ordinary Acid Arsenate. We will be glad to quote prices and give further information.

THE
CANADA PAINT CO.
LIMITED

PAINT-VARNISH AND DRY COLOR
MAKERS-LINSEED OIL CRUSHERS
MONTREAL-TORONTO-WINNIPEG-CALGARY-HALIFAX
OXIDE MINES-RED MILL QUEBEC

British Fruit Salerooms

The saleroom in Liverpool belongs to the Brokers' Association itself, and in Manchester, although the Corporation owns the building, they leased it to the Manchester Association for a term of years. Both buildings are very similar in internal appearance, being constructed on the amphitheatre or tier system, the seats of the buyers rising one above the other in a three-quarter circle facing the rostrum, the samples coming up from the cellar below the lift.

These salerooms are not open to the public, nor indeed to any buyer. Persons wishing to buy from the brokers must be members of the Fruit Growers' Association which was formed in each place some years ago. No other, except duly and formally admitted representatives of members' firms may attend the auctions, and even if the actual owner of the goods wishes to see them sold, he must take a seat with the auctioneer and his clerks and is not admitted amongst the buyers.

Admission to the membership of these buyers' associations is a most difficult matter, as it is to existing members' interests to keep new members out, the result being that while some members are little more than retailers other firms in the district whose business has so expanded as to well qualify them for membership, are unable to obtain admission to the charmed circle. If these wish to purchase goods in the saleroom they are compelled to get a member to do it for them, for which service a fee is charged.

STRAWBERRY PLANTS

For sale. Fine stocky, well-rooted plants. Eleven tested varieties. Write for list and prices.

S. H. RITTENHOUSE, JORDAN HARBOR, ONT.

NOTICE TO BEEKEEPERS

Those intending to introduce new blood into their apiary will do well to send for my descriptive price list of three banded Red Clover Italian Queens. It's FREE.

W. R. STIRLING
RIDGETOWN - ONTARIO

NEW AND RARE SEEDS

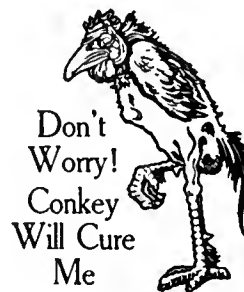
Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalog free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

Over 60 years Horticultural Experience
is offered for the Beautifying of
Your Garden by

KELWAY & SON

The Royal Horticulturists
Langport, Somerset, England



Do not let your chickens mope and die. Send for catalogue, with price list of Reliable Poultry Remedies, and prices of Eggs for hatching from different breeds of Poultry, including Turkeys, Ducks and Geese.

J. H. RUTHERFORD

Box 62

CALEDON EAST, ONTARIO

Glorious New Spencer Sweet Peas

KING WHITE—It attains perfection in every detail, which goes to make up a Spencer Sweet Pea. It is the experts' ideal for perfect form. The improvement in form, size, vigor, waviness and purity stands eminently out when compared to other White Spencers, and calls for unstinted admiration. The number of four-blossomed sprays and the great length of stem will appeal strongly to those wishing a good White for decorative work. Packet, 20c.

"EMPRESS EUGENIE"—The color is a delicate tone of light gray flaked with light lavender. A vase or bunch gives a most charming effect. The flowers are of large size, beautifully waved and crimped. A vigorous grower and very free bloomer, throwing a large proportion of four-flowered sprays. Packet, 20c.

FREE—Our 112-page illustrated catalogue of Vegetable, Farm and Flower Seeds, Plants, Bulbs, Implements, Poultry Supplies, etc. Write for it.

JOHN A. BRUCE & CO., Ltd., Hamilton, Ont.
SEED MERCHANTS
ESTABLISHED 1850

ILLUMINATOR—A glorious orange-salmon Sweet Pea. In dull light the color appears to be a flat orange scarlet, but when in bright sunshine or artificial light, the color is completely changed, and it appears a bright salmon cerise, sparkling with orange. It introduces a new shade of color to Sweet Pea enthusiasts of rare beauty, and with its additional attributes of great vigor, floriferousness and symmetry, it is sure to captivate all who give it a place in their garden. Packet, 20c.

"WEDGEWOOD"—It is a true self and is appropriately named, as its color throughout is a unique shade of wedge-wood blue, a color so popular in China. It produces profusely flowers of good size, borne almost uniformly in four-flowered sprays, well placed, upon long stout stems. Of finest Spencer form the standard and wings are well waved. Packet, 20c.



500,000 FEET BELTING FOR SALE

Leather, Rubber Canvas, etc. 100,000 rods Wire Fencing, 10,000 lbs. Barb Wire at 2c. per lb., 300,000 ft. Iron Pipe, also 1,000 other bargains at 25 to 50 less than regular value. New lists just issued, sent free on request. Write immediately.

IMPERIAL MFG. & SUPPLY CO.
6 QUEEN ST. MONTREAL, QUE.
All kinds of Machinery Bought and Sold.

Vinegar Plants Cider Presses

We are the exclusive Canadian Agents for the Hydraulic Press Mfg. Co., Mount Gilead, Ohio. If you want a Cider Press of any kind or a Vinegar Plant, write us.

The Brown Boggs Co.

Limited
HAMILTON, CAN.

FREE LAND FOR THE SETTLER IN NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

H. A. MACDONELL

Director of Colonization

Parliament Buildings., TORONTO

HON. JAS. S. DUFF

Minister of Agriculture

Parliament Bldgs., Toronto

The buyers are under an agreement with the brokers not to buy by auction within certain limits, and the brokers are in turn bound to conform to a certain standard in the selection and cataloging of the goods, so it will be seen that the brokers' monopoly is well maintained; the same regulations practically applying to both centres.

It is not our province to discuss the fairness of this, and of course there are strong opinions both ways. Growers who send goods to be sold for their own account must decide for themselves as to the relative value of the sale by auction as against the sale by private firms. These latter, of whom many are to be found in our advertising pages, just sell on the open market, or very often actually on the quay side in the ordinary private treaty manner.

What will most interest our readers, however, will be the selecting of apples for the big sales. Each broker has of course a staff of experienced men who examine the apples on the arrival and discharge of the boat. They are then classified, each according to its own mark and grade, as follows: (First) Tights, or barrels in perfectly good condition. (Second) Slacks, or barrels in which the apples have sunk a little, but which are not very bad. (Third) Slack and wet, and (fourth) Wasty. The last two designations speak for themselves. Occasionally we get some almost worthless, others worthless, and in the latter case the goods are only sold for the value of the barrel.

These selections have to be very carefully made, as under certain circumstances buyers can refuse their purchases if the selection is not up to the standard bought. In this case the goods are often sold again at the next sale, with the proviso "No rejections" which of course means a lower price.

Extended cooperation, the union of local associations in one central selling body, is the most urgent need in connection with the fruit growing industry of Ontario at the present time.

QUEENS

Northern bred Italians, Hardy stock, best strain honey gatherers. Order NOW. Prices, April and May—Untested \$1.00, Tested \$1.50. Selected \$2.00. Extra selected, 3 banded, \$5.00.

W. B. DAVIS CO., AURORA, ILL., U.S.A.

Northern Grown Trees

Apple, Pear, Plum, Cherry, Peach, Grapes, Small Fruits, Deciduous and Evergreen Ornamentals, Roses, Flowering Shrubs, Climbers, etc.

Catalogue Free: It tells the whole story.

J. H. WISSMER, Nurseryman, Port Elgin, Ont.

FOR SALE AND WANTED

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 30 cents, strictly cash in advance.

ALL KINDS OF FARMS—Fruit farms a specialty.
—W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS.—Before buying it will pay you to consult me. I make a specialty of fruit and grain farms.—Melvin Gayman & Co., St. Catharines.

RELIABLE HELP, SKILLED AND unskilled, supplied horticulturists and others. Canadian Employment Bureau, Proprietor member of B. G. A., London, England, 65½ James St. South, Hamilton, Ont.

ASK DAWSON. He knows.
IF YOU WANT to sell a farm consult me.
IF YOU WANT to buy a farm consult me.
I HAVE some of the best fruit, Stock, Grain and Dairy Farms on my list at right prices.
H. W. Dawson, Ninety Colborne St., Toronto.

SALMON ARM, Shusway Lake, B.C., has the finest fruit and dairy land in B.C. No irrigation necessary; mild winters, moderate summers, no blizzards or high winds; delightful climate; enormous yields of fruit, vegetables and hay; good fishing; fine boating amidst the most beautiful scenery, and the Salmon Arm fruit has realized 25 cents per box more than other fruit in B.C. Prices of land moderate, and terms to suit. Apply to F. C. Haydock, Salmon Arm, B.C.

BEES wanted, up to 250 colonies. Particulars to Box 23, Fisherville, Ont.

BEES WANTED—Either with or without other equipment. Give full particulars to Wm. Weir, 34 Chester Ave., Riverdale, Toronto, Ont.

BEES WANTED—Particulars to A. D., Box 86, O.A.C., Guelph.

HONEY LABELS—Catalogue and prices free for the asking.—Pearl Card Co., Clintonville, Conn.

50 COLONIES OF BEES for sale. Address, W. S. Walton, Scarboro Junction, Ontario.

I BUY BEES STANDING. Myself pack and load. Owner pockets cash.—F. A. Allen, Philipsburg East, Que.

FOR QUICK SALE—25 Colonies of Bees, also 24 lbs. Bees Wax. Price reasonable.—Mrs. W. H. Webster, Bellamy, Ontario.

BEZZO'S FAMOUS PRIZE ASTERS—Read particulars on page ix.

I CAN NOW SUPPLY the demand for Old Country Gooseberry Bushes—2 year 25c. one year 15c each. Tam O'Shanter Red Currant Bushes, 25c.—Wm. Dick, Echo Place, Brantford, Ontario.

EXPERIENCED BEEKEEPER desires an engagement for the season. Age 30.—Box 20, Canadian Horticulturist, Peterboro, Ontario.

FOR SALE—Bees and Queens. 2 frame Nuclei Queenless \$2.25, 3 frame \$3.25, 10 frame Colonies with Queen \$8.00, f.o.b. Berclair. Queens, tested \$1.25, untested \$1.00.—John W. Pharr, Berclair, Texas.

RENNIE'S I.X.L. TOMATO EXTREMELY EARLY, WONDERFULLY PROLIFIC

A week earlier than the Earliana. More productive than the Chalk's Jewel. As large as the Plentiful. As solid as the New Glohe. In fact, the world's leading extremely early Tomato.

In our field tests, I.X.L. Tomato proved to be a week to ten days earlier than the Spark's Earliana, with an abundance of fruit larger and more prolific than Chalk's Jewel; in fact, any number of specimens could be found as large as the Plentiful Tomato. The I.X.L. Tomato is without a single exception the leading extremely early Tomato. Do not experiment with it, but plant your entire early crop in I.X.L. Tomato. Your crop will net you big returns.

1. A beautiful, brilliant red color.
2. Vines are a perfect mass of large, smooth fruit, a single plant yielding 1 bushel.
3. Fruit is extremely early, enormously abundant, ripens all at once.
4. Vines compact and can be placed two feet apart in three-foot rows.
5. The largest growers tell us that we cannot say too much in favor of the I.X.L. Tomato.

Price: 1 lb. \$2.25, oz. 75c, 1/2 oz. 40c, pkt. 15c

OUR SPECIAL OFFER

We want every person who uses seeds to see our 1914 Seed Book and try this Splendid Early Tomato, and we will send a packet for 10c. with Seed Book. This book is full of new photographs of Vegetables, Fruits and Flowers. Send your address to-day.

WM. RENNIE CO., Limited

Branches at Montreal, Winnipeg and Vancouver

Cor. Adelaide and Jarvis Streets,
TORONTO



The Canadian Horticulturist

Vol. XXXVII

MAY, 1914

No. 5

The New Soluble Sulphur Spray

LEADING orchardists in Canada are interested in the new spray mixture Soluble-Sulphur. In last issue of The Canadian Horticulturist appeared an article by Prof. L. Caesar, Provincial Entomologist, Guelph, Ont., advising its use this year only in an experimental way. In the same issue Mr. J. G. Mitchell, of Clarksburg, Ont., the well-known fruit grower and manager of the Georgian Bay Fruit Growers' Association, who used it in his orchard last year, advocated its use strongly.

Writing in "Better Fruit," F. A. Frazier, of Portland, Oregon, an authority on apple culture, says regarding it:

Soluble Sulphur is a compound made by melting under high degree of heat in specially designed furnaces, of sulphur and soda (not caustic soda), resulting in a soluble powder fifty-seven to sixty per cent sulphur. All sulphur in solution is caustic in a certain sense. The sulphur is simply more active in the solvent condition. The caustic property of soluble sulphur is due only to the sulphur in solution and not to the solvent agent. Much loose talk has been indulged in pertaining to things caustic. No properly made sulphur spray ever injured a tree. Sometimes the fruit or foliage has been burned, but in most cases such burning is because of previous fungus infection and injury admitting the spray to the wounds caused, or a devitalized condition of the tree where it does not have normal power of resistance. Soluble Sulphur is sometimes spoken of as being more caustic than lime-sulphur. What is really meant is that there is a greater spray value to a given quantity.

All contact sprays in general use of any value have the caustic or burning quality. The virtue of crude oil, as a scale spray, over the lime-sulphur is because of its greater burning properties. That is why crude oil can not be safely used on tender trees or foliage which together with its gumming and pore-filling characteristics has rendered it unsafe as a tree spray for continued use. Lime-sulphur Solution re-acts very rapidly in presence of the atmosphere (returns to its solids), thus withdrawing from action a large portion of sulphur.

A solution of soluble sulphur does not re-act in the same way. The tendency is to spread and penetrate until evaporation

of water leaves the finely divided sulphur thoroughly spread over the surface and effectually carried into the scale crusts. Thus a given quantity of Soluble Sulphur spray will go farther in effective work than the same quantity in the old time lime-sulphur way.

In soluble sulphur the perfect spreading quality prevents the concentration of spray in drops, so when used in proper proportions it does no harm to the most tender plants. Soluble Sulphur is, therefore, not only a superior scale spray, but a very effective and economical scab spray. There is also a valuable feature in that the trees assimilate very readily the sulphur in this form, thereby producing a greater vigor and extending to a better coloring of fruit. Soluble sulphur can be safely applied at winter strength when the fruit leaves of apple trees are the size of a squirrel's ear. This combines the winter strength spray with the first scab spray and at this time also the aphids are more susceptible to control.

Sulphur, even the old time home-boiled and later the concentrated solutions, has been an element of no small value to the western orchards through the assimila-

tion by the trees. The orchardists of the east know this truth better because of the comparisons which they have observed between sulphur orchards and those other-wise sprayed or unsprayed. If there is one factor above another to which the success of the western orchards can be attributed, it is the thirty-odd years' use of the sulphur sprays. In the last six or seven years the same thing has been the greatest single factor which is bringing eastern orchards up to the standard of the much and justly famed western orchards. Should the western orchardist ever forget what he owes to the sulphur sprays, just that soon he stands aside while the east passes him on the way to market with the high-grade fruit.

The economy of soluble sulphur is apparent, one hundred pounds being equal in effective value to fifty-seven gallons of thirty-three degrees lime-sulphur solution. As to the efficiency, results count for more than far-fetched theories. Having been under the closest investigation for three years, we find it used exclusively on many orchards of two or three hundred acres, the equivalent of fifteen thousand barrels of solution being used out



Golden Russets in Bloom : Orchard of W. H. Gibson, Newcastle, Ont.

These Russets were fifteen years planted and averaged four barrels to a tree. This variety is in great demand on the English market and should be more extensively grown where the soil is suitable.



Mr. D. Johnson, Forest, Ont.

The announcement that Mr. Johnson has been appointed to the newly created position of Dominion Fruit Commissioner has met with general approval. Note reference to Mr. Johnson published on page 133.

of the eastern factories in 1913. In point of convenience, the elimination of the heavy barrel with the high freight and haulage charges, the leakage, freezing, and crystallization are all elements which any fruit grower will appreciate.

Scientific investigation is always slow. Progressive spray manufacturers employing the best chemical engineers obtainable, and the progressive fruit growers bent upon results, cooperating with the experiment stations with their equipment for research work, are right along bringing efficiency up to the minute.

Soluble Sulphur is a true spray efficiency up to the minute. The combination of the materials for spray purposes and the process of making are recognized as new and valuable, after most thorough investigation by the United States and Canadian patent offices and letters patent have been issued. Neither the discovery of the elements nor the fact that they would combine and form a soluble material is claimed, but the obstacles which have halted previous efforts to produce in a practical way a practical spray have been overcome by the invention of the soluble sulphur.

By cultivating early in the season fruit is better matured to a marketable size, and better coloring is secured; early cultivation also induces the fruit buds for next year's crop to form. The tree will grow with a steady, healthy growth, holding the sap at the top of the tree for the sustenance of the fruit buds. Early cultivation conserves the moisture.—W. T. Macoun, Ottawa.

Pears and Pear Culture

A. W. Cook, O.A.C., Guelph, Ont.

PRUNING pears must be done with the idea of securing fruit buds near centre of tree. This alleviates the tendency of large limbs to break under the strain of their crop. Remember to disinfect all large wounds, that are the result of pruning or other causes, with lime-sulphur solution or some other disinfect. Take the greatest care to thoroughly treat the pruning tools while going from one tree to another. If this is done it does not leave an opportunity for this disease to gain a foot hold in the tree.

THIN THE FRUIT

When the tree reaches maturity and comes into the bearing state there can be a considerable amount of time saved in the thinning of the fruit by pruning off the fruit spurs. There is one disadvantage in this method when the orchard is located in a section that is known to have late frosts. As the pruning should be done before the leaves start there is apt to be enough fruit spurs left on the tree that has been late in maturing to give a yield of fruit while if no thinning had been done there probably would have been a light crop of fruit. However, taking into account this one disadvantage, pruning can be and should be practiced more throughout Ontario than it is. The pear, like many other varieties of fruit, can be made to yield more regularly by regular, systematic pruning and the thinning of the fruit each year.

The cultivation of the pear is very similar to that of the apple. Cultivation should commence as early in the spring as it is possible to do so. Cultivation should be very thorough and done systematically. It is very essential to keep a dust mulch at the surface to maintain the necessary moisture for proper plant and fruit development. As all fruits are composed mostly of water, the necessity of maintaining the soil moisture will at once be seen. This is the case in practically all orchards. The humus can to a large extent be enlarged by the use of cover crops. Among the best cover crops we have vetch, rye, rape, turnips and winter oats. The rye and vetch are sown in the later part of August so as to attain a good heavy crop. After this is ploughed in during the spring it is generally followed by rape or summer turnips.

In cultivating the orchard one should not continue it later than the latter part of June for the southern counties. If cultivation is kept up it induces large twig growth. If a high color is desired, this is a serious handicap. There has been a feeling amongst fruit growers in Ontario that certain chemical fer-

tilizers would produce highly colored fruit. From experiments conducted by the Ontario Agriculture College, it has been found that very little of the color is derived from the use of fertilizers. If one were to alternate the use of barnyard manures with commercial fertilizers it will be found more profitable than if either is used separately.

In some sections of the western states pears are put up almost exclusively in boxes for the fancy markets. In Canada, up to date, they have been handled very carelessly. This may be accounted for to a large extent from a large percentage of them being disposed of to the canning factories. The size of the package that has been used in the north-western states is somewhat smaller than that of our standard apple boxes. The British Columbia growers use a box somewhat the same. The majority of pears that are marketed are usually put up in small baskets holding eleven quarts. This is used for the local trade. By using this size of a carrier the pear can be made to appear pleasing to the eye. However, if the fruit is to be shipped to a distant market it is best to pack it in a box that would be about half the size of our regular apple boxes. By doing this the pears present a better appearance upon reaching their destination, because they have been provided better protection. If one takes the care to pack regularly the fruit should always be wrapped. If the points here touched upon are borne in mind and followed out, pear growing can be made a success.

Fruit Tree Borers

I. F. Metcalf, B.S.A., Gore Bay, Ont.

An enemy of fruit trees that has done a great deal of damage is the borer. The presence of borers in a tree is indicated by the lack of growth and by the presence of sawdust like gnawings and excrement that are pushed out from their holes. These may not be detected until after the damage is done, unless the sod is kept away from the base of the tree. Frequently a tree will be entirely girdled before you are aware that the borers are working in the tree.

When the work of the borers is noticed the best remedy is to cut them out with a sharp knife, or a very flexible (copper) wire may be pushed in and they may be killed in that way. However, there are several ways of preventing this trouble. The idea is to prevent the female beetle from laying her eggs on the trunk of the tree. These eggs may be laid any time in the early spring, and would soon develop into the borers which would later on do the damage to the trees. Any pre-

ventative treatment must be given in the spring, as these treatments would have no effect on the borers themselves.

AN EFFECTIVE WASH

A great variety of washes have been used for preventing the female beetles from laying their eggs upon the trees. the following is probably as effective as any that can be safely used without injury to the bark (after having removed all loose bark with a dull hoe or scraper).

Dissolve one-half gallon of soft soap or five pounds of whale oil soap in one-half gallon of hot water, and add a half-pint of carbolic acid. When mixed, add five gallons of warm water and enough lime to make a whitewash of about the consistency of paint. Finally, stir in one-fourth pound of Paris green. Apply the wash with a stiff brush, covering the bark thoroughly and completely, and filling all cracks and crevices. Another application should be made in about three weeks' time.

The use of something that will not only protect the trees from the attack of the

borers, but also from the heat of the sun, is more useful and economical than a simple wash. The parts of trees injured by heat are more liable to the depredations of borers than the healthy, uninjured portions, and so anything that will prevent sunscald and will at the same time keep off insects, will be a double benefit to the tree.

Take some wood veneer, such as is used in basket-making, or birch bark, and wrap around the trunk of the tree beginning just below the surface of the ground and extending upwards for about two feet. Bank the base of this up with some soil to prevent the insects getting in that way, and fill the top with cotton wool. See that there are no openings along the length of this covering where insects could get in. If applied in the fall this covering would also protect from mice. A small amount of money and a little time spent in looking after the trees that you now have will be much better spent than it would be in buying and setting out new trees.

Black Leaf 40 and lime-sulphur (1-10), \$1.35.

Black Leaf 40 and lime-sulphur (1-30), 80 cts.

Black Leaf 40 and lime sulphur (1-30), and lead arsenate, \$1.04.

KEROSENE EMULSION

Kerosene at 17 cts. per gallon.

Soap at 5 cts per lb.

Cost of 40 gallons of spray, 78 cts.

WHALE OIL SOAPS

The cost of the different makes will range from about sixty to seventy-five cents for forty gallons of the diluted wash.

I have purposely omitted mention of several mixtures of which a good deal is heard, because I consider the cost prohibitive.

A number of years ago it was confidently stated that the dormant spray of lime-sulphur was a specific against all kinds of aphid eggs. This has since been disproved both by experiment station workers and practical men all over the country, even when the spray is deferred until the buds are bursting and the aphids hatched, only a small percentage are destroyed. It is significant to note in this connection that in British Columbia last year, whereas the amount of lime-sulphur used fell off forty-one per cent., there was an increase of twenty-four per cent. in the sales of Black Leaf 40, indicating that the growers considered aphid the chief pest, and found control during the growing seasons most satisfactory.

APPLY IN TIME

Though in bad years more than the one spray will be found necessary, one thing must be recognized, and that is, that the spray must be applied before the aphids have had time to curl the leaves, or subsequent sprayings will be of little value, even with the use of a fairly high pressure. In spite of its relative high cost, I am inclined at the present time to recommend the Black Leaf 40, as from the standpoint of efficiency, cost, convenience of application, ability to mix with other sprays, it has, in my own experience, proved most satisfactory. I do not believe that when there is reason to fear an attack of aphids a grower would be justified in "taking a chance," and risking no spray. By doing this, he would stand to lose, not only a large proportion of his crop, but also the time and money he had spent in cultivating, pruning, thinning, and all other operations incidental to the production of his crop. I am convinced that most of the cases of non-success that have been reported by those using this spray have been the result of two factors: First, not spraying until the leaves have curled, and second, insufficient pressure.

Orchard Aphids and Their Control *

Prof. W. H. Brittain, B.S.A., Provincial Entomologist, Truro, N.S.

THE rot form of orchard aphids is the most troublesome, and I have been informed by several Nova Scotia fruitgrowers they have been troubled with it, especially in young trees. The best treatment known for this form is tobacco waste, which can be obtained from tobacco factories at small cost. Nursery trees can be protected from the aphids by laying a line of dust in a furrow on either side of the tree loosely covering

with earth. Larger trees can be protected by removing the earth to a depth of about four inches for a radius of three feet around the tree and putting in about a peck of the tobacco waste. It is most convenient to do this in the spring when plowing. Throw a furrow away from the tree on each side, having a man follow the plow with a hoe and scraping away the earth for a short distance around each infested tree.

COST OF DIFFERENT SPRAYS (40 GALLONS)

Black Leaf 40 and soap, 55 cts.

*Extract from an address delivered at the last annual convention of the Nova Scotia Fruit Growers' Association.



Nests of the Tent and Forest Caterpillars which have done so much damage of late years

The eggs of these caterpillars may be found in little lumps around the ends of the branches of the trees early in the season. Cut them off before they hatch out. If you neglect to do this an early spraying will quickly destroy them.

—Photo by Rev. Father Leopold, La Trappe, Que.



A Row of King of Tompkins Apples in Bloom in the Orchard of W. Palmer, Victoria, B.C.

The Pollination of Fruit

Wm. Gibbs, Appin, Ont.

POLLINATION is accomplished through two agencies: To a small extent by wind under favorable conditions, and to a large extent by pollinating insects. Of these the honey bee is the most important, because of its great numbers, owing to the many apiaries that are kept throughout the country.

The relatives of the honey bee, which also assist in pollinizing fruit trees and flowers, include the bumble bee, which is almost the only medium by which red clover is pollinized. The balance of her relatives include ants, lonely wasps, digger wasps, and colony wasps. These latter have little effect on the pollination of fruit blossoms on account of their not being present in sufficient numbers.

Investigations have shown that bees are an absolute necessity for the production of fruit and clover seed. They are also the only agencies by which cross-pollination takes place excepting that affected by wind, which is not considered to take place to any great extent. In some flowers the pistils are sterile to their own pollen. Thus they are dependent entirely on cross pollination for their very existence. It is claimed that because of cross-pollination the apple is more vigorous and more resistant to disease, better able to withstand frost without killing, grows larger, and has more color.

Prof. F. A. Waugh, of the Massachusetts Agricultural College, has frequently warned fruit growers against the danger of spraying fruit trees when in bloom because of the destruction of honey bees that results. Speaking at a convention last June he gave some conclusive evidence, showing that the honey bee was

the principal and almost the only agent in the pollination of fruit trees. He referred to the claim to the effect that there are other agencies than bees for doing this work, principal among which is the wind. To determine the relative importance of these factors he stated that he had taken pieces of glass, coated them with vaseline, and secured them on the windward side of fruit trees in full bloom, at a distance that was about equal to the distance between trees. He found that these glasses, smeared as they were with grease, received almost no pollen dust, even when the wind blew through the trees in full bloom in the direction of the plates. He further stated that there are practically no insects except bees that are flying when fruit trees are in bloom, and that nearly all the cross-pollination that is effected is through the agency of the bees. There are some varieties of trees that are self-pollinating, but even these varieties have more and better fruit when bees are present. Prof. Waugh is not only not a beekeeper, but he is regarded as one of the greatest authorities on fruit culture in the United States.

A Remedy for Plum Aphis

A. H. Ruff, Toronto, Ont.

The following remedy has been used by me as a remedy for the plum aphis (aphis pruni). I feel that I can highly recommend it:

Thirty pounds of soap (soft soap is the best), one gallon of coal oil, three pounds of naphthalene, and nine parts of water for the stock solution. If boiled until the soap is dissolved it will readily mix. Use eighteen pounds of the stock solution to one hundred gallons of water. Spray before the buds swell.

Changing Varieties

D. L. Mackintosh, Calgary, Alberta

There are by far too many varieties of apples grown in British Columbia, as well as in most other fruit districts. Growers are aware of this, but when you mention the advisability of changing to varieties that have proved themselves worthy of culture they shake their heads and seem to have the idea that this is going to involve a great loss.

Most growers consider that the trees should be taken out and young trees planted in their places. This is wrong. The thing to do is to cut over the present trees, leaving about one-half dozen branches about six inches long above the crotch, and more if the tree is of any size, and crown graft at least four scions into each branch. This would give at least twenty-four young growths right away, and owing to the vigor of the roots they would make great growth the first and second year. The chances are that if everything was favorable there would be a quantity of fruit the third year. Thus the whole character of the orchard could be changed in a few years with very little loss.

If the right varieties were worked on the old trees, the grower would be more than compensated for any trouble or apparent loss he might have had. I should never think of taking the old trees out, because the change can be made so much sooner by cutting back and grafting the desired varieties.

Better Fruits at Less Cost

Prof. H. A. Surface, Pennsylvania

Obtain uniformity of size by a uniform system of pruning, and especially by systematic thinning, feeding, cultivating, mulching, manuring, etc.

Both increased size and color can be obtained by making several pickings, taking each time only those that are well developed and colored, leaving the others for future development in size and color.

Avoid blemishes from diseases by spraying with fungicides, according to the teachings of our plant pathologists, and by planting varieties on ground suited to each respectively. For example: Champion peach, on low ground or where there is no air drainage, is almost sure to have ripe rot; and Salway in such a location is very liable to have scab and crack. Also spray with strong lime-sulphur solution once each dormant season, better immediately before the leaves appear; and with bordeaux mixture or self-boiled lime-sulphur just before the blossoms open; and spray again with the same, at proper intervals, two or three times after the blossoms fall.

The road that leads to the orchard is the pathway to a simple, happy prosperous life.

Making a Lawn

J. H. Grisdale, Director of Experimental Farms, Ottawa, Ont.

"The lawn
Which, after sweeping broadly round
the house,
Went trickling through the shrubberies
in a stream

Of tender turf, and wore and lost itself
Among the Acacias."

Mrs. Browning here paints such a picture as all love to dwell upon. Who among us has not some pleasing memory of just such a grass set scene. Such surroundings bespeak the peace, the calm, the restfulness so welcome to the weary soul, so kind to the tired eye. Not one of us but admires a well kept lawn, and better still, not a man or woman among us but may have one at small outlay of time and money.

THE SOIL

The best grass growing land is a good loam. Any well drained, well prepared area of any other sort of soil may, however, be so handled as to ensure a pleasing result. Where building operations have recently been going on such residues as bricks, stone chippings, etc., should be buried at least six inches below the surface. The surface should be graded with a slight fall away from buildings and any depressions or hollows should be filled in, even something higher than the surrounding land to allow for settling. Manure should then be applied, about one pound per square foot of lawn surface. After scattering the manure evenly over the surface, the whole area should be well ploughed or spaded. If time presses or labor is too expensive, ploughing or spading may be done only the once, and that to a moderate depth. If it is desired to ensure the very best results possible the land should be ploughed, burying the manure to a moderate depth (four or five inches) then later, after harrowing and rolling several times, or when in a good state of tilth ploughed again about half an inch deeper than before. Harrowing and rolling will be again in order and any new unevenness due to settling should now be corrected. After harrowing, levelling and rolling till in good shape it should be left untouched for a week or ten days.

SEEDING

After the surface has lain fallow for ten days or so, it should be again levelled and well harrowed. If not very firm underfoot it will be advisable to roll with a heavy roller once or twice before seeding. The seed should be divided into two equal portions and the first part scattered as evenly as possible over the whole lawn, walking from east to west while sowing. Each and every square foot of the whole lawn having received its fair share of the first half of the seed, the sower should then proceed to sow

the second half of the seed as evenly as possible over the lawn walking from north to south during the process and again being careful to give every square foot of land its fair share of this, the second part or other half of the seed, as well as a fair proportion of the first part. Carelessness in seed scattering is responsible for many patchy looking lawns and is in fact the cause of not a few failures. The seed once sown, the whole surface should be lightly and evenly raked or harrowed. On most soils a rake will give better results than a harrow. The main point is to cover the seed, although at the same time, one must guard against too deeply burying it. After raking or lightly harrowing the land should be rolled again, unless very damp, in which case the rolling operation should be postponed till a later date.

Many lawn grass mixtures are to be had at seed stores. Not infrequently these ready prepared mixtures contain a rather large proportion of weed seeds. It is important to buy grass seed free from weed seeds, since if preparation has been made as above outlined, the chances are very strongly in favor of a lawn free from weeds other than such as spring from seeds sown by wind or mixed with grass seed.

Taken all in all probably the best grass to sow is Canadian Blue Grass, or failing this, Kentucky Blue Grass. Pains should be taken to secure a good

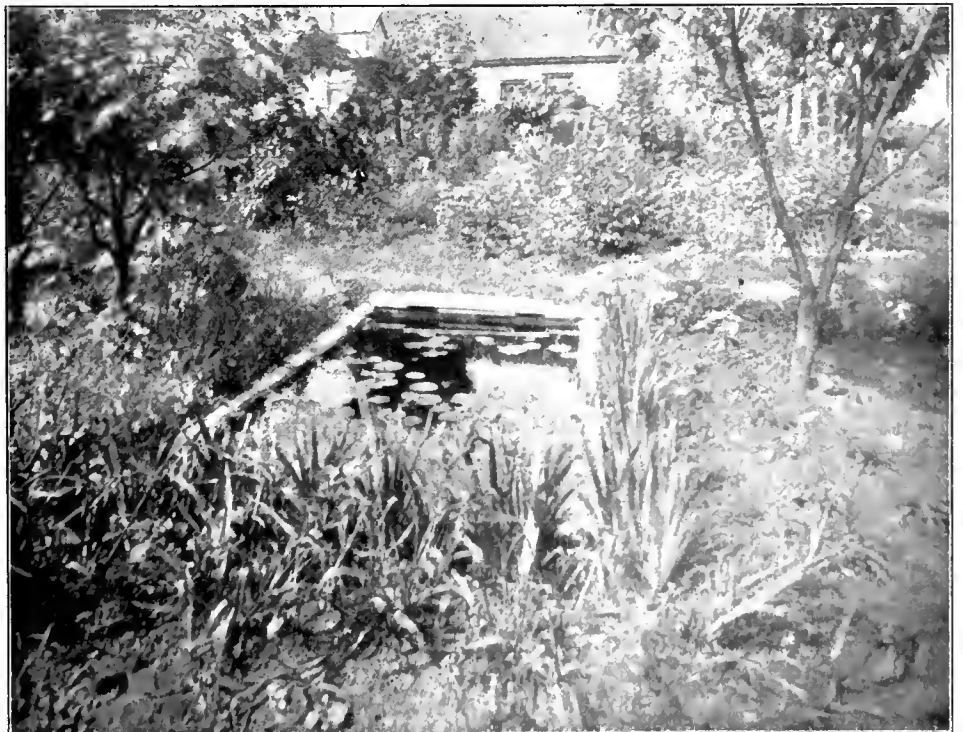
sample of this grass and it should then be sown liberally at the rate of about fifty pounds an acre, or one pound to the hundred square yards.

After the seed is sown the lawn should be well rolled, care being taken to pack as evenly as possible and retain a smooth surface. No rolling should be done, however, if the surface is at all damp when the seeding is performed. It would be much better to postpone the rolling for a day or two, or if the soil continues moist it might be advisable to postpone the rolling for two or three weeks.

After the grass is well up should a drought occur or a heavy rain come and the surface later become very dry, it would be found advantageous to roll again, using a light roller. This will break the surface crust, create a mulch, and so encourage growth and ensure a better stand.

Care should be taken not to use a lawn mower upon the young grass, since this machine is almost certain to pull out by the roots rather than clip it at this stage of growth. If weeds spring up or the grass becomes unsightly, the whole area should be carefully gone over with a sharp scythe rather than with the lawn mower.

The process of getting a lawn by sowing is of course rather slow. The seeding down method may be very often improved upon, at least so far as speed is concerned, by sod laying. For laying sod, practically the same preparation



An Inexpensive Beauty Spot Where the Birds Delight to Stay. Lily Pond in the Garden of Mrs. McNair, Hamilton, Ont.

should be made as for seeding. The lawn maker should see that the sod supplied is thick enough to include a fair

proportion of growing roots, and so ensure the grass getting a good start in its new feeding ground.

Planting and Pruning Shrubs

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

IN order to arrive at the proper time and method of pruning shrubs a study of their characteristics is necessary. For this purpose we must recognize two distinct types, distinct in the sense that one flowers upon the current year's wood, and the other upon the old or previous season's growth. It is easy to distinguish between the two. As a general rule shrubs should be pruned at once after flowering if pruning is necessary, but in the case of the more tender ones which flower upon the current season's growth, it is unwise to prune before danger of heavy frosts is past in the spring, say about the first week of April. roses and hydrangeas. There is always danger when these are pruned early in the season, of the remaining buds being killed, which is often the case when bright sunlight succeeds excessive frost. When this occurs the plants may be seriously injured, and the resultant growth and flowers worthless.

Lilacs, Shubby Honeysuckles (*Lonicera*), Weigelia, Snowballs (*Viburnum*), Deutzias, Forsythias, and similar hardy shrubs should all, if necessary, be pruned at once after flowering, and the old flowers removed from such as the lilac before seed formation has occurred.

In the case of shrubs, except evergreens, which are dependent upon the formation of new growth for the following season's flowers, the immediate removal of old flowering wood or branches favors the development of new growth and the subsequent ripening of vegetative or flowering buds ere winter sets in. Shrubs, however, bearing berries (fruits) which mature during the fall should not be pruned after flowering, as this will eliminate their winter beauty, as upon the flowering branches the berries are borne. In this category are such examples as *Berberis* of many kinds, snowberries white and red fruited (*Symphoricarpos racemosus* and *Vulgaris*), and deciduous species of *Euonymus*, many of which bear very ornamental fruits.

BENEFITS OF PRUNING

The objects of pruning are: To encourage the development of vigorous growth and the subsequent production of flowers; to eliminate worthless branches and superfluous growth, and thus favor the equal distribution of air and light: To remove defective parts, and to promote growth to replace these and thus assist nature to restore symmetry.

It is an easy matter to remove all undesirable growth, providing certain principles are observed. When remov-

ing branches, do not leave stubs, each undesirable portion should be removed with a slanting cut at its junction with another stem or just above a bud. Whenever it is necessary to shorten or "head back" the longest branches all should not be cut at the same height.

Growth should be encouraged close to the ground rather than at the apex of the shrub. To induce this the longest branches must be gradually removed. As the stronger branches grow more quickly to the source of light, the weaker lateral ones eventually succumb. It is a case of the survival of the fittest, consequently the main stems near the ground appear bare and unsightly, therefore, the stronger must be removed to be replaced by the weak. Dilapidation quickly ensues where careful pruning is not exercised, but where the practice pertains renovation is constantly taking place much to the enhanced appearance of the subjects.

It is utter folly to clip shrubs into grotesque shapes unless they are planted as hedges or are included in a formal garden scheme. Clipped shrubs are not desirable for any other purpose, neither are they natural, as usually all their beauty and grace vanishes with the removal of growth which produces flowers. A well pruned shrub should appear to an artistic eye a perfect object, no sign of mutilation should be visible, the head should be perfectly symmetrical with being grotesque. Clipped shrubs are always grotesque, as the pernicious practice of hacking these beautiful subjects results in their total failure to produce annually their abundant blossoms. Shrubs differ from trees in that they possess no well defined leader (trunk). When pruning trees it is proper to retain the leader, but in the former no such leader should be encouraged.

ROSES

Roses planted in the spring should be cut back somewhat severely. Other shrubs may simply require thinning to counterbalance the loss of roots caused by lifting. Roses, however, which are established are pruned according to the characteristics of the class to which they belong. Hybrid perpetuals are stronger growers than hybrid teas, while climbing or rambling roses are distinct from either of the former. Strong growing plants should be pruned lightly, weak growing ones such as many hybrid teas severely, but in the case of ramblers it is only necessary to remove old or dead branches to prevent crowding of young



A Well Pruned Hydrangea

growths, or to allow such growths to be trained into desirable positions. It may also occasionally be necessary to shorten back the longest growths to keep the plants within bounds.

Briefly the shoots of hybrid perpetuals should simply be severed at points six inches or so from the previous season's wood, and all superfluous or weak growth removed. The mistake of cutting all at the same height should be avoided. Hybrid teas should be severely thinned, completely eliminating weak growths, leaving only the strong, say, three or four to each plant, or if these are exceptionally weak, only two. Cut these back to four inches from the old wood and the resulting growth will be much stronger than were a larger number allowed to remain, and will produce flowers of finer quality and in greater profusion.

HYDRANGEA

Prune the shoots of hydrangea paniculata back to two buds and after growth has commenced rub-off one of the shoots, leaving the stronger in each case. Restrict the number on the plant to four or five. In this way weak unsightly plants will become rejuvenated, and if carefully cultivated and mulched enormous flowers will result. The illustration is that of a plant bearing individual flowers eighteen inches in depth and sixteen inches in diameter at the base, pruned in the manner indicated above.

Some of the Clematis are almost herbaceous in character, dying down to the ground in winter. Others, by protection, or during mild winters, come through the winter without the growth being killed back very much. If the wood is not killed back when starting them in the spring, it is well to leave some of the strong live wood rather than cut them right down to the ground. The variety Jackmanni is one of the best varieties grown. They flower on the new growth produced from older wood.—Wm. Hunt, O.A.C., Guelph, Ont.

The Culture of Sweet Peas

J. H. Bowman, Elmira, Ont.

THE sweet pea is one of the most popular of annual flowers, and deservedly so. I know of no other flower that will yield so much beautiful bloom over so long a period.

Disease has been very prevalent during the past few years, and appears to be increasing each season. The disease, commonly known as streak, is said by some authorities to be caused by root rot fungus. Light to dark brown streaks appear on the lower parts of the stem and on the leaves. The points of the shoots are often abnormally thick and of a yellowish color. The flowers often come malformed and are usually very poor in color, thin and flimsy. The stems are also weak.

Whatever the cause may be, I am convinced, after three years' careful observation and experiment, that heavy dressings of animal manure encourage the development of streak. If your soil is in fair condition, I wouldn't use any animal manure at all, but would advise the use of a phosphate and potash fertilizer.

Those authorities who hold that "streak disease" is caused by root rot fungus, *Thulavia basicola*, advise disinfecting the soil by one of the following methods: By heating to two hundred and twelve degrees F. This is hardly practicable where any quantity of soil is to be treated. By soaking with formalin—one per cent. solution, one part, to twelve and one-half gallons of water. By making holes all over the ground, twelve inches apart and ten inches deep, dropping half an ounce of petrol in each, and closing immediately to keep vapor in. This disinfection should be done at least two weeks before sowing or planting. Some writers also advise soaking the seed the night before sowing in permanganate of potash, a half-ounce to a gallon of water.

Dig your trenches about two feet wide and twelve to eighteen inches deep. Don't use any animal manure unless your soil is in very poor condition. After you have worked up the soil, dust on the following fertilizer, and rake in thoroughly: Two ounces bone meal, two ounces superphosphate, two ounces sulphate of potash per square yard.

It is important to get your sweet pea seeds in as early in the season as possible. Sweet peas do best if they have an opportunity to make good root development before hot weather sets in. Sow seeds in two rows, one foot apart, and three inches apart in the row. They may be thinned later to about six inches apart.

A trellis or support of wire netting or string should be provided before the plants make any tendrils. Sweet peas

never grow away so freely if the support is not provided in time.

After the plants are up a few inches, they should be cultivated thoroughly, and this cultivation should be kept up through the season at least once a week. The Buco cultivator is an excellent tool for this purpose.

If you have room for but twelve varieties, the following (selected as the best of over fifty Spencer varieties I grew last season) are recommended: Elfrida Pearson, bluish; Etta Dyke, white; Hercules, pink; Mrs. Routzahn or Gladys Burt, cream pinks; Mrs. R. Hallam, deep cream pink; Clara Curtis, cream; Nettie Jenkins, lavender; Maud Holmes or King Edward Spencer, crimson; Queen of Norway, mauve; Nubian, maroon; Mrs. C. W. Breadmore, picotee pink on cream ground; Thos. Stevenson or Edna Unwin Improved, orange scarlet.

Making Flower Beds

P. D. Powe, Cainsville, Ont.

Making the beds for garden annuals is one of the most important steps to be taken in the getting of good flowers. In the city, where manure is hard to obtain, the scrapings from the road are good if mixed with a little prepared fertilizer (obtainable from all seed dealers) and worked into any fairly good garden soil. Where manure

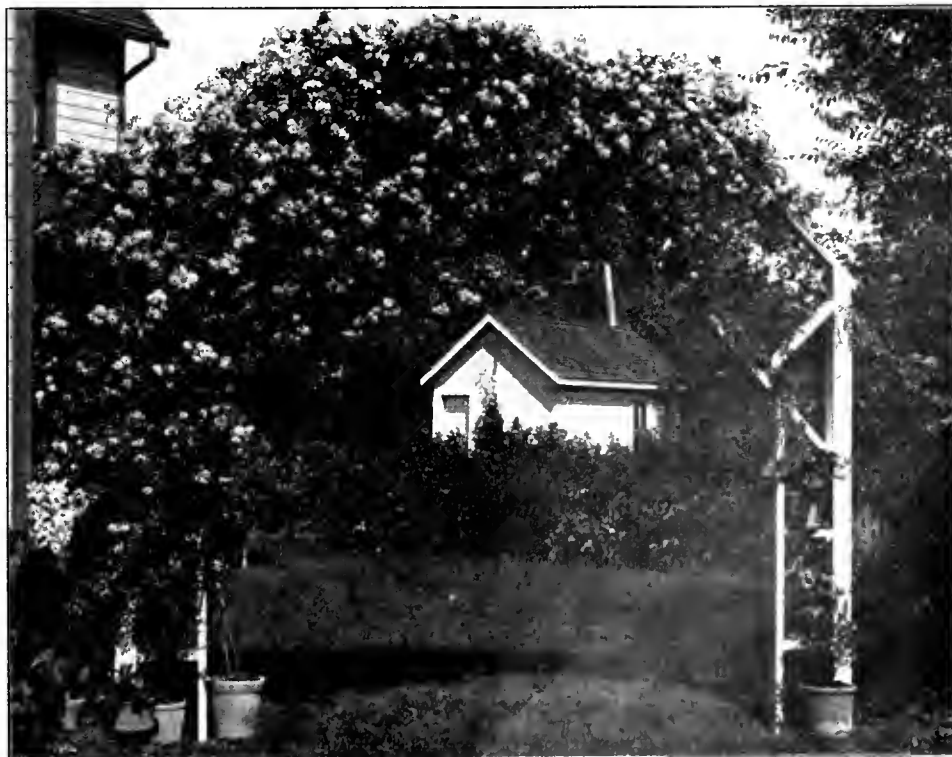
is plentiful and soil abundant, a good bed may be made up of one-third manure, well rotted, and if the soil is dry, one-fifth sand. Remember, the richer the beds the better the plants if you can keep the weeds down.

When we have our soil well worked in a pile we must decide what shape our bed will take and its size. This depends greatly on experience. If you are not an expert and a true judge of beauty, you had better stick to the plain square, round, diamond or oval bed, and not try any of the more complicated designs. Leave these to the florist or landscape gardener.

The size of the bed should be determined by how much land you have at your disposal. We can only say that one large bed is far more beautiful and artistic than several small beds.

These points decided, turn again to your compost heap and after spading the bed you have laid out wheel your prepared soil upon it and with a rake round it up and make it to the size and form decided on. Remove all grass, weeds, stones and other matter, and make the whole firm and smooth, gently sloping towards the edges of the bed. Long, narrow beds may be made in the same manner at the foot of a trellis or along the porch, where vines may be planted. These beds are best prepared as soon in the spring as the ground is ready to work.

When trees are starting leaf take a stick and make shallow lines in the beds. Sow



An Arch of Dorothy Perkins Roses in Bloom at entrance to Rose Garden of Wm. Hartry Seaforth, Ont.

Fully one thousand choice roses are grown in Seaforth by some half dozen enthusiasts. They include all the standard varieties and many new sorts that promise to increase in popularity. Mr. Hartry keeps bees as well as roses. His honey house may be seen in the background.



Something of the Beauty of a Well Arranged Pergola is Here Revealed

Pergolas in the garden are gaining rapidly in public favor. They make ideal retreats at almost any time during the growing season. This pergola is in the garden of Mrs. D. Lumsden, Ottawa, Ont.

these thinly and cover lightly or they may be sown broadcast if the whole bed is to be planted solidly in one variety of plants. One of the most beautiful beds we ever saw was planted in this manner. It comprised all the mixed poppies in all colors. The beauty cannot be described in words and can only be understood by making a similar bed. Balsam, petunias, phlox or other quick

growing plants of a like character, are the best for this purpose. Where a border is desired a drill or light furrow one half inch deep, may be made around the edge of the bed with a sharp stick, and sown thinly with the seed of alysum, mignonette, portulaca, or many other low growing plants. As the seed is mostly small, give a very light covering of earth.

Experimental Work with Flowers*

F. E. Buck, Experimental Farm, Ottawa

SINCE 1911, the seed of several hundred different varieties of annual flowers has been obtained each year from seedsmen in this and other countries, and tested at the Central Experimental Farm, Ottawa. Details are not possible here, but some results have been obtained which are suggestive and encouraging. Some results have suggested other lines of experiment, for instance, the seed of a number of annual plants left over from previous years and saved for a test as to germinability, was sowed just before the period of drought of last June and July. A certain number of the young plants which came up did not succumb to the heat and drought but survived under the most adverse conditions and gave bloom late in the year after those of the regular test were over. As a point of interest it may be stated that they bloomed with us at Ottawa up till the end of October. From this we conclude that it may be well for us to try out most annuals under similar conditions in order to know what can be recommended to people who wish to raise flowers under conditions that would make a weed blush to do well.

*Extract from an address delivered before the Ontario Horticultural Association.

One very interesting point of general interest which has been called to our attention by visitors from the old world in connection with these annuals is that the intensity of their colors is greater with us at Ottawa, than it is, say, in England. The brilliancy of the whole patch of annuals tested at Ottawa was very great this past dry season.

To tell you anything about the recent experiments, commenced in 1911, with roses, more particularly the hybrid tea varieties, other than this, that already a first edition of a pamphlet on roses has been exhausted and another edition will be ready shortly, is unnecessary perhaps, because what we have to say about the test so far will be said in that pamphlet. I must mention, however, that we started tests with sweet peas about the year 1910. So far these tests have been chiefly variety tests but in future we are planning to make them cover in addition methods of growing, and so forth. We need definite information on several points, such as whether sweet peas will do well when grown under certain conditions in the same position year after year. We want more information as to the control of sweet pea diseases and troubles, reliable data regarding which can-

not be given till definite observations have been carried on for several years. We do know certain things about certain methods which seem to contradict certain prevailing opinions. One is that sweet peas grown in a trench did not do so well in our soil as those grown by their side which were sown in level ground. Another is that those planted from six to twelve inches apart did not do so well as those planted about three inches apart, and that those planted closer than this did best during the early part of the year only.

In all our experimental work at Ottawa we wish to keep in mind at least two things, one is improvement, that is, in the widest meaning of the word. Improvement is sought by selection, by introducing new things and discarding old, by rearranging old and new, by modern technique, by methods of culture, of control of insects and diseases, by the cultivation of that taste and knowledge of the best which leads to the improvement of those things that make better home surroundings possible. Improvement, that is, in things themselves and in the way of doing things. This must be the *raison d'être*, the basis of our experimental work.

The other thing is this: we do not seek the new things so often as the slight improvement of the old, and therefore our chances of success are greater. So long as we do not duplicate the work of others but remember to do work called for by local conditions, and do it without deviation, by discouragement of seasons or events, even so long will the experimental work be of a quality and quantity justifying, we hope, its continuance and increase.

Geraniums

Wm. Hunt, O.A.C., Guelph, Ont.

To secure good geranium plants for flowering in winter, slips should be taken in the fall or very early spring. A nice plant potted from a three and a half or four inch pot into a six or seven inch pot in June in bedding out time and put into good potting soil, will make a good plant for winter flowering. Plunge the pot to the rim out in the open ground early in June. Pinch the tips of each shoot out when about eight inches in length until about the second week in July. This induces a bushy, sturdy growth.

Keep all the blooms and buds pinched off until the middle of August. Lift the pot from the ground early in September and bring it into the window when it should flower all winter. The plant should have plenty of water at the roots during the summer when plunged in the ground. After bringing it into the house some liquid fertilizer should be given the plant about every ten days. "Bon-ora," sold at seed stores, is the best plant food for pot plants.

The Art of Potting

John Gall, Inglewood

THOUGH it may seem a simple matter enough on the surface, there is some art in potting plants properly. The pots should be well drained, using for this purpose pieces of broken pots or crockery, and placing one large piece over the hole in the bottom of your pot. A little Sphagnum or rough material of some kind should next be placed over the crocks to keep the soil from being washed down and blocking the drainage. Then put on an inch or so of soil before placing the plant in position, and fill in with the compost, pressing this down firmly with the fingers until the pot is nearly but not quite full.

If the pot is overfilled, insufficient room is left for watering, while, if not filled full enough, not only does the pot not contain enough soil, but the plant is liable to become "drowned" when water is given. There ought always to be enough space left between the top of the pot and the surface of the soil to allow the giving of sufficient water to saturate the whole of the soil and moisten all the roots.

Some people seem to throw the plants into the pots almost anyhow, and still they grow and do well. This plan may answer well enough in a country garden, where plants seem to thrive under any condition, but too much care cannot be taken in the suburban or town garden. Most plants, especially those of the "hard-wooded" or shrubby type, require

to be potted very firmly—that is, to have the soil made almost hard in the pots, but in the case of soft-wooded plants generally, pot rather loosely for rapid growth and more firmly for early bloom. In all potting operations, see that the roots of the plants are spread out in the soil, that is to say, they should not have the soil thrown on them, but among them. The soil should always be slightly lower at the rim of the pot than at the neck of the plant.

Hardy Perennials*

H. W. Cooper, Ottawa, Ont.

Of all the plants that are cultivated for ornamental as well as for cutting purposes there are none which have made such rapid strides in public favor as the hardy garden flowers. Their popularity is not at all surprising when we consider the many varied and pleasant changes which take place throughout the growing season in a garden, or portion of one, given over to this class of plants, which every week, yes, almost every day, brings forth something fresh and new to interest and delight. Beginning in April the early flowering kinds, such as the anemonies, hepaticas, Arabis and others, open their flowers soon after the snow has left the shadier parts of our gardens. From then on we have constant

*A paper read at a recent meeting of the Ottawa Horticultural Society.

changing variety throughout the summer until the fall, when only the severe frosts stop the more persistent and late blooming kinds.

The most effective position for this class of plants in general is an open border surrounding a lawn, or backed by a fence dividing a garden or lot. They will not thrive if given a northern exposure.

The method of cultivation is of the simplest nature. Begin with any good soil as a foundation. When preparing the soil for planting the ground should be dug to at least two feet in depth and enriched with well-decomposed manure, or other fertilizer. The best time to plant perennials is in the spring as soon as the plants show signs of growth. Hardy plants, such as hemerocallis, dionycums, paeonies, and Oriental poppies, which produce their growth from a crown of close compact roots and flower in the early summer, are best planted in the autumn, as these take some time to get established. Fall planting of these varieties saves a season's bloom. These particular kinds should be left undisturbed for several years. Add a suitable fertilizer as a surface dressing each spring after growth is well started.

The late summer and autumn blooming kinds are usually of a more vigorous growth than the former. They are of such sorts as the rudbeckias, heleniums, helianthus, the perennial phlox and asters. On these the original crowns die out each season and many new side growths are made. These are best replanted every second spring, selecting from three to five growths, which, after the ground has been redug and enriched, may be replanted in their same positions or in another part of the garden. Treated in this manner they will not only produce more and larger flowers, but will prevent these stronger and more rampant growing kinds from crowding out their equally interesting, but less vigorous, neighbors.

May Garden Notes

Ferns may still be transplanted from the woods to a sheltered spot about the house or yard.

Morning glories, wild cucumber, and hyacinth bean are good vines to cover up unsightly fences or rock piles.

Sow annual flower seed such as nasturtiums, portulaca, California poppy, and Shirley poppy in the open ground.

It is not too late to spade up that weedy place on the lawn, add well-rotted manure and sow good bluegrass seed.

Dahlias and gladiolus may still be planted. In fact, it is an excellent plan to plant gladioli at intervals in order to get a succession of bloom the whole season.



Spring Bloom in the Garden of Charles Hunter, Niagara-on-the-Lake, Ont., where many Beautiful Shrubs and Novelties such as Figs are grown

Commercial Fertilizers

Prof. E. M. Straight

WHEN are all the people to disregard the size of the fertilizer bag and the color and perfume of the contents? These matters need not condemn them for they have nothing to do with values; but the analysis printed on the bag—printed there for the protection of the grower—cannot afford to be neglected. One hundred pounds of fertilizer may be good value at one dollar, and it may be good value at two dollars. It depends upon the amount and form of the plant food present.

It is of primary importance that the grower should know, that what are supplied in the fertilizer, is complete, is potassium, phosphorus and nitrogen—the three plant foods which become exhausted in soils. He must also know that these elemental substances exist in the fertilizer in the form of compounds, that the potassium will be stated in terms of potash, the phosphorus in terms of phosphoric acid, and the total nitrogen may be present partly as a nitrate and partly as ammonia, or other form stated in terms of ammonia. All this is very confusing.

The grower will not have proceeded far when he will conclude that the amounts of essential food exist in the bag in very small amounts, and he will wonder why he cannot purchase them in a pure state, and apply them directly to the soil. He will find that a few pounds of plant food and no more, are contained in one hundred of the mixed and complete fertilizer. He will find that the attempt to apply plant food as elements would be far from practical, and would never pay. Nitrogen is abundant, but a gas. As such it would be found exceedingly difficult to purchase and harder to apply.

The form in which the food is found in the fertilizer is second in importance to the food itself. Plants take up their food from the soil in solution, so that if the chemicals applied are insoluble they are not used. For example, the phosphorus present may be stated as (first) phosphates soluble in water; (second) reverted phosphates; (third) insoluble phosphates; and (fourth) total phosphorus, which would be the sum of the other three. Reverted phosphates are soluble in a solution of ammonium citrate, and are sometimes referred to as "citrate-soluble phosphates." Ammonium citrate, to a certain extent, exerts a solvent power upon the reverted phosphate comparable with that exhibited by the roots of plants. Such phosphates are less valuable than those soluble in water. To make the total phosphorus

appear large the insoluble part is added to the soluble and reverted, but it is only fair that the grower should know this.

The materials used as sources of nitrogen by the fertilizer manufacturer are quite varied. One of the commonest forms is nitrate of soda, commonly called Chili saltpetre. This important substance is found in large deposits, occurring in the rainless regions of Chili and Peru. The commercial article is about ninety five per cent. pure, and contains about fifteen or sixteen per cent. of nitrogen. Sulphate of ammonia is a by-product of the local gas works. It contains about twenty per cent. of nitrogen.

Calcium cyanide is a new compound containing nitrogen, which promises well. The inexhaustible supply of nitrogen in the air is drawn upon in its making. Dried blood is a by-product from the slaughter houses, extensively used. It contains about thirteen per cent. of nitrogen. Tankage is a by-product from the slaughter houses, of various composition. Bone, hair, skin, blood and complete animals, condemned for other purposes, are boiled, and the fat removed. The dried product is then ground and offered for sale as tankage. The amounts of nitrogen contained in tankage depend upon the materials entering into the composition.

Ground bone is one of the chief sources of phosphoric acid. It is a very slow acting substance, however, so slow that for many purposes it is of little immediate value. When acted upon by sulphuric acid it becomes immediately available for plant life. This material is known as superphosphate. On account of the limited amount of bone, phosphatic rock has been used for the same purpose. In many cases this dissolved rock, or acid phosphate as it is commonly called, has given good results. In other cases results have not been striking.

Basic slag is a by-product of the Bessemer steel manufacture. The slag is ground to a fine powder. It contains about twelve per cent. of phosphoric acid.

One of the best potash fertilizers is the muriate of potash, a salt mined in Germany. It contains about fifty per cent. of potash. Kainit is a low-grade potash salt, varying somewhat in composition but averaging about twelve per cent. potash.

Wood ashes is a valuable source of potash, which also contains lime. Much more of it should be used in New Brunswick, as it is a cheap source of supplying potash.

When the various amounts of plant food are known, as stated on the bag, it is an easy matter to compute what should be paid per hundred, if the commercial values of the fertilizer constituents are known. These values vary from year to year, so that the commercial prices are no indication that the price is on a par with what the grower can afford to pay. This must be determined by comparing price with increase in crop, and what it sold for

Commercial prices not long since were something as follows:

Nitrogen in nitrates	16 cents
Nitrogen in dried blood and tankage ..	15 to 20 cents
Phosphorus in water-soluble phosphates.	10 cents
Phosphorus in ammonium-citrate soluble phosphates	9 cents
Phosphorus, insoluble in ammonia citrate	4 1-2 cents
Potassium	5 to 6 cents

MIXING FERTILIZERS

The mixing of fertilizers is not a difficult matter, and may be performed by any grower if a barn floor and shovel are available. A sand sieve is also an aid in getting rid of lumps and in bringing the mixture to a uniform mass. There is a saving in the home mixing of fertilizers. The amount of the saving will depend somewhat upon the quantities of chemicals purchased, wholesale or retail.

Sulphate of ammonia should not be mixed with wood ashes or lime. Bone meal should not be mixed with lime. Barnyard manure should not be mixed with lime or nitrate of soda. Thomas slag should not be mixed with nitrate of soda, kainite or muriate of potash. If some fertilizing constituents are mixed, valuable plant food may be lost in the air, or hard, lumpy masses obtained. The common fertilizers, other than those mentioned, may be mixed with safety.

It is an easy matter to determine the required amount of each material with which to make a fertilizer of a given formula. Suppose we desire to mix a fertilizer containing four per cent. nitrogen, eight per cent. phosphoric acid and ten per cent. potash, and that we have on hand nitrate of soda, acid phosphate, and muriate of potash. Nitrate of soda contains about sixteen per cent. of nitrogen. Every one hundred pounds of fertilizer must contain four per cent., or four pounds of nitrogen. It is seen at once that we must have four times twenty or eighty pounds of nitrogen to meet this formula, and as each one hundred pounds of nitrate of soda contains sixteen pounds of nitrogen, we must have five times this quantity, or five hundred pounds of nitrate of soda.



Irish Cobbler Potatoes, Grown by W. E. Turner, Duval, Sask.

These potatoes show the results of three years of selection under the rules of the Canadian Seed Growers' Association.

The formula calls for eight per cent. of phosphoric acid, or eight times twenty or one hundred and sixty pounds for a ton. Dividing one hundred and sixty by fourteen, the per cent. of available phosphoric acid in the phosphate used, we find that 1,143 pounds of phosphate are needed. Two hundred pounds of potash are required. Muriate of potash contains fifty per cent. of actual potash, so it will take four hundred pounds of muriate of potash to supply this. These amounts make a total of a ton and forty-three pounds.

If a low-grade fertilizer were wanted smaller amounts of these ingredients should be used, and the amount made up to a ton by means of a filler such as sand, land plaster or the like. The color of the resulting mass, and the volume of a hundred pounds of the same, de-

pends upon the character of the filler used. It is seldom profitable to buy or use low-grade fertilizers.

Try the following formulae this year:

POTATOES—

Nitrate of Soda 100 lbs.
Dried Blood 200 lbs.
Superphosphates 1,200 lbs.
Muriate of Potash 500 lbs.
Apply at the rate of 2,000 per acre.

SWEET CORN—

Nitrate of Soda 100 lbs.
Dried Blood 200 lbs.
Superphosphate 1,300 lbs.
Muriate of Potash 400 lbs.

Apply at the rate of two thousand lbs. an acre. These amounts are to be used when no stable manure is used. If used in conjunction with stable manure a much less quantity should be used.

Early Potatoes

James Anthony, Agincourt, Ont.

The best soil for early potatoes is a rich, sandy loam, with a porous subsoil. The best crop to precede the potatoes is clover. As soon as the clover is removed the sod is covered with a thick carpet of manure. This is left to leach into the soil, with the result that the early fall finds the field covered with a long and thick after-crop of clover. The field is plowed in the early fall, about six inches deep. In the spring it is disked and re-plowed and the soil thoroughly worked up in order that it may be deep and mellow. It can be readily seen that it is crammed full of humus.

The Early Eurekas give the best of satisfaction. About the middle of March the seed is put, one row deep, into crates. As far as possible the potatoes are stood

seed end up in the crates. The crates are placed in a fairly warm room in order that they may be well sprouted by planting time.

As soon as the danger of frost is believed to be over the potatoes are taken to the field and planted. A potato planter with a fertilizer attachment is used for making the marks for the seed and for depositing a fertilizer rich in potash in the mark for the potatoes. The potash is applied at the rate of about three hundred pounds an acre. The potatoes are then placed in the marks by hand, about twelve or fourteen inches apart, and covered lightly by hand. The smaller sized and the medium sized seed is planted whole in order that a period of slow growth may be the more successfully

resisted. The planting and covering are done by hand in order that the sprouts may not be broken off. It is best to plant the seed quite deep and to cover lightly. The shallow covering encourages quick growth, as the sun's heat is readily admitted to the seed, and, should a frost threaten, the sprouts above ground may be quickly covered either by the hoe or by a light furrow turned over them.

This may look like a good deal of trouble, but it must be remembered that the early potatoes bring the largest profits. A week at the beginning of the season may mean more in profits than a month later on.

Sowing Vegetable Seeds

Mrs. Dell Grattan, Port Arthur, Ont.

Beans grow well and yield abundantly. But beware of the June frost. Dwarf Black Wax is one of the best sort. I have never known this variety to rust or mildew. Beets should be sown as early as the ground can be worked, in light, well manured soil. Early Egyptian or Eclipse will not disappoint you. Plant in rows twelve inches apart and cover the seed to the depth of three-quarters of an inch.

Parsley grows freely, and the housewife will find many uses for it. Peas grow abundantly almost anywhere.

Turnips are grown mostly in the field, but sow some in the garden also. Golden Ball is a fine table turnip but is inclined to become "punky" towards fall. Purple Top Swede is a fine turnip for winter use.

May Vegetable Notes

Rhubarb and asparagus are two perennial vegetables that are early on the market and are easy to raise. Rhubarb should be set in autumn. Strong one-year-old plants of asparagus may be set as late as the middle of June. Prepare the land well and set at least six inches deep, covering but two inches deep at first, gradually filling the trench as the plants grow.—LeRoy Cady, Horticulturist, University Farm, St. Paul.

Make a liberal planting of Golden Bantam sweet corn. Stowell's Evergreen may be planted at the same time for late corn.

Do not set out tomatoes, cannas, coleus, or other tender plants until the end of May, as there is always danger of frost or cold weather until that time.

Keep the cultivator going in the garden. It is easier to get rid of the weeds when they are small than when they are well established.

The main crop of potatoes should go into the ground now. Treat all seed with formalin or corrosive sublimate, for scab, and plant on land that has not been

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.

Published by The Horticultural
Publishing Company, Limited
PETERBORO, ONTARIO

H. BRONSON COWAN Managing Director

The Only Magazines in Their Field in the
Dominion

OFFICIAL ORGANS OF THE ONTARIO AND QUEREBC
FRUIT GROWERS' ASSOCIATIONS
AND OF THE ONTARIO AND NEW BRUNSWICK
BEEKEEPERS' ASSOCIATIONS.

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W. A. Mountstephen, 3 Regent St., London, S.W.

1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee-keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, \$1.40 an Inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1911. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,626	Total	150,293
Average each issue in 1907,		6,627	
" " " " 1913,		12,524	

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts. Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT

EDITORIAL

THE IMPROVEMENT TAX

Our system of taxing improvements is a relic of the past. It should have been abolished long ago. It operates continuously to prevent people from improving their homes by the establishment of lawns, the planting of vines, shrubs and flowers, the more general use of paint or the construction of sun rooms or conservatories. Expenditures of this class may involve only a few dollars but they improve the appearance of a home so greatly as to lead the inexperienced to believe that a large outlay has been made. The result is that when the assessor next calls one's assessment is likely to be marked up several hundreds and possibly a thousand dollars or more above its original figure. The annual increase in taxation thus brought about may equal and even exceed the money laid out on the improvements.

Only those who have studied this question, or who have had special opportunities for observation, can realize what a check on enterprise is this tax on improvements. At one time in France there was a tax on window panes. It finally was abolished when it was found that thousands of houses in the poorer districts were being erected without windows. Even the larger houses had so few windows it was seen that the health of their inmates was likely to be seriously affected. At another period, in the city of Brooklyn, a frontage tax was imposed on houses according to the number of stories they had on the street line. Within a few years houses were being erected that were only one or two stories high on the street line but several stories higher at the rear. History shows clearly that there is no law more certain than that people will resort to all manner of expedients to evade the tax collector. A ridiculous and aggravating feature of the law is the fact that where people neglect to paint and otherwise improve their homes, and thereby permit them to deteriorate in appearance their taxes are likely to be reduced in proportion to their lack of enterprise or thrift.

The issue has a more serious side. These are days when the increased cost of living is recognized as a heavy burden on the wage earner. When a man erects a house and thus helps to reduce the cost of living by lowering rents, we fine him by increasing his taxes, whereas had he held the land out of use for an increase in land values, he would have escaped such a fine. The fruit grower, who lowers the cost of living by converting unused or only partly used land into an orchard or garden, is penalized by a heavy increase in taxes. It is true that the earning powers of the land are also increased but nevertheless the net returns to the grower from his enterprise are in every instance reduced by the exact amount of the increase in his taxes. The injustice and folly involved in this method of raising municipal revenue is realized by the people of western Canada, who in several provinces are rapidly removing all taxes from improvements and raising them by a tax on land values instead.

The officers of the Guelph Horticultural Society have found difficulty in inducing citizens to enter the lawn and garden

competitions, because any improvements these citizens might make in the appearance of their homes would tend to increase their assessment. They are asking the officers of other horticultural societies in Ontario to unite with them in an appeal to the provincial government to have the law so changed that municipalities need not be required to tax such improvements. The appeal deserves to meet with a hearty response.

COOPERATIVE PRINCIPLES

Elsewhere in this issue appears an article by Mr. A. E. Adams, of Berwick, N.S., dealing with the principles that underlie all truly successful cooperative enterprises. Much of the remarkable success of the United Fruit Companies Limited of Nova Scotia has been due to the capable work of Mr. Adams. Mr. Adams is, therefore, well qualified to deal with this subject.

Canada is on the eve of a wonderful development of cooperative enterprise. During the past ten years our attention has been devoted mainly to the organization of local associations. During the past few years the movement has reached a new stage, which has resulted in the formation of provincial organizations that, by linking up the local units, have greatly strengthened the whole movement. Already we have in Canada several large organizations that compare favorably with the most successful enterprises of the kind in the world.

The United Fruit Companies Limited of Nova Scotia, the Ontario Cooperative Apple Growers' Association, the Grain Growers' Grain Company of Winnipeg, and several British Columbia organizations are all striking examples of cooperative enterprises conducted on a large scale. The Grain Growers' Grain Company, while not purely cooperative, is largely so, and is probably the greatest farmers' organization in the world. It has assets of over one million dollars. The business it transacted last year exceeded fifty million dollars in volume.

To-day there is a widespread demand for information relating to the true principles of cooperative enterprises. The article by Mr. Adams makes a number of these clear. In the June issue of The Canadian Horticulturist we purpose publishing a continuation of this article, which will be equally as instructive, and which will deal more fully with the cooperative situation as it exists in the Maritime Provinces. Our readers are advised to follow these articles closely.

TWO WELCOME ANNOUNCEMENTS

Fruit growers heard with pleasure the double announcement made recently by the Hon. Martin Burrell, Dominion Minister of Agriculture, that he has separated the fruit from the dairy division, giving it the status of a separate division, and that he had appointed Mr. D. Johnson, the well-known and successful fruit grower of Forest, Ontario, as Dominion Fruit Commissioner. Thus has been brought to a successful conclusion an agitation that has been waged by the fruit growers of Canada during the past nine years.

The first protest against the amalgamation of the fruit with the dairy division of the Dominion Department of Agriculture was lodged by The Canadian Horticulturist in its January issue, 1905. Shortly before this it had been announced that Dr. Jas. W. Robertson was retiring as Dominion

Commissioner of Agriculture, and that the fruit was to be united with the dairy division under the Dominion Dairy Commissioner. The protest registered by The Canadian Horticulturist was taken up by the various provincial fruit growers' associations, and later the subject was discussed at the first Dominion Fruit Conference. It was felt that the fruit interests of Canada would never receive the attention that their importance deserved until the fruit division was given the same standing in the Department of Agriculture as the seed, live stock and dairy divisions. The former Government having refused to act in the matter the question was again urged at the last Dominion conference. A partial promise of action was then secured.

The announcement that Hon. Mr. Burrell has now given the fruit division the standing that the fruit growers have so long desired, is the most important, relating to the fruit interests, that has been made for some time. It should mean an increased expenditure on behalf of the fruit industry and an extension of the activities of the department.

In selecting Mr. Daniel Johnson to have charge of the fruit division the Minister of Agriculture has made a wise choice. Mr. Johnson has both the practical knowledge of fruit growing and the executive ability that is required to ensure the wise management of the department. Mr. Johnson has been successful as a fruit grower, as president of his local fruit growers' association, of the Ontario Cooperative Apple Growers' Association, and as a leading member of the Dominion Fruit Conference. There is every reason to expect, therefore, that he will be equally successful as Dominion Fruit Commissioner. Mr. Johnson will have great opportunities to benefit the fruit industry of Canada, and is assured of the hearty sympathy and support of fruit growers in all our provinces.

The United States Post Office Department is conducting an experiment with the parcels post system that will be followed with interest on this side of the line. Ten cities have been selected for the experiment. Farmers living on rural routes leading out from these cities have been invited to notify the postmaster as to produce they have to sell and the price for the same. A printed list is then prepared and left with every housewife in the city by the mail carrier. The housewife may then call up the farmer by telephone or drop him a card and have the supplies transferred from the farm to her door by the parcels post. There are manifest disadvantages connected with such a system, but the experiment will be followed with interest. Serious difficulties will have to be overcome before the system can be made a success, but they should not prove insurmountable. If it proves a success across the border we may expect to see the same experiment tried out in this country.

The discovery on an apple shipped to England of a deposit of copper sulphate in a quantity sufficient to prove dangerous to any person eating the apple has caused some consternation across the water. Were there any likelihood that careless spraying might result in any considerable quantity of apples being affected in this way there might be cause for apprehension, but there is not one chance in thousands of such an incident being reported again. It is surprising that this case has been heard of.

PUBLISHER'S DESK

The annual meeting of The Horticultural Publishing Company, Limited, publishers of The Canadian Horticulturist, The Canadian Florist and The Beekeeper, was held in Toronto, on March 26th. The reports presented showed that the Company had had the most satisfactory year in its experience. A substantial sum was voted to the reserve account. Improvements in the publications published by the Company were authorized.

The old officers were all re-elected. They are: President, W. H. Bunting, St. Catharines, Past President Ontario Fruit Growers' Association; Vice-President, John H. Dunlop, Toronto, Past President of The Canadian Horticultural Association; Managing Director and Secretary-Treasurer, H. B. Cowan, Peterboro, President of The Canadian Horticultural Association, and Ex-Superintendent of Horticultural Societies for Ontario; Directors: A. W. Peart, Burlington, Past President Ontario Fruit Growers' Association; Harold Jones, Prescott, Director Ontario Fruit Growers' Association; Hermann Simmers, Toronto, Ex-Treasurer of The Canadian Horticultural Association, and P. W. Hodgetts, Toronto, Director of Horticulture for Ontario.

SOCIETY NOTES

THE TAX ON IMPROVEMENTS

At a recent meeting of the directors of the Guelph Horticultural Society, the secretary was instructed to forward the following resolution to The Canadian Horticulturist for publication, with the suggestion that the matter of the increase of taxation on account of landscape improvements, be taken up with all other horticultural societies, and be brought before the next annual convention.

"To the Mayor and Aldermen of the City of Guelph, greeting: At a meeting of the officers and directors of the Guelph Horticultural Society, held in the City Hall on Thursday, December 4th, 1913, after considerable discussion a resolution was passed unanimously, and a committee was appointed to draft a resolution to be placed before the City Council to the following effect: 'Heretofore the society has experienced difficulty in persuading citizens to enter the lawn and garden competitions, frequently for the reason, that any improvement they might make in the appearance of their lawns and homes, from a landscape point of view, tended to increase their assessment. Instances were quoted, in the case of double tenement houses, where one owner or tenant spends his spare time in adding to the beauty of his surroundings, and in that way to the beauty and improvement of the city. When the assessor sees the improvement he feels justified in adding considerably to the assessable value of that particular property, whereas the occupant of the other tenement, who has allowed weeds to grow on his lawn, and his place to become generally disreputable, and an eye-sore, and in many cases a nuisance to the neighborhood, actually re-

ceives a premium on his laziness and neglect in the shape of a lower assessment than that of his industrious neighbor.

"As the Horticultural Society has for years been endeavoring to aid in the beautifying of the city, and has been greatly handicapped by this particular point, it was suggested that a slightly lower assessment might be allowed to those who beautify their places and thus aid in the beautifying of the city, rather than to those who neglect their lawns and gardens and allow them to become a positive eyesore to the community at large.

"Your petitioners respectfully request that this resolution be not laid aside, but dealt with at once, and a recommendation be made to the new council that a committee be appointed from your honorable body to act with a committee from the Horticultural Society, to take steps to recommend a change, if necessary, in the Assessment Act, whereby this may be accomplished, and the assessor's hands be thereby strengthened in this matter.

New Fruit Commissioner

Mr. D. Johnson, of Forest, Ont., whose appointment as Dominion Fruit Commissioner, a new position, has been announced recently, was born on a fruit farm at Forest, Ont., thirty-six years ago. He took charge of the orchards when only sixteen years of age, and for ten years served as foreman at the spraying, cultivation, picking and packing of the fruit. Ten years ago he became interested in the cooperative movement and took a leading part in the organization of the Forest Fruit Growers' and Forwarding Association, one of the first and largest associations established in Ontario, and was for six years its president and manager.

Four years ago Mr. Johnson withdrew from the Forest Association to devote all his time to Johnson Bros., fruit growers, shippers and exporters, of which he was a half owner. This firm desired to cut out the wholesaler and sent its own salesman to the West, who sold in car lots during the fall months. The firm's output last season from its own farm was six thousand seven hundred boxes of apples, wrapped and tiered, thirteen thousand eleven-quart baskets of peaches, eleven thousand baskets of plums, and ninety-five thousand seven hundred pounds of dried fruit. In 1912 their output was over four thousand barrels of apples.

In Mr. Johnson's orchards spraying is done with power sprayers. They make their own lime-sulphur, barrels and boxes. Their peaches and plums are sold largely by their own mail order system. All their apples are now packed in boxes. The lower grades of apples are worked into evaporated apple rings by their own plant in the orchard, and shipped in car loads to Europe and the West. The peelings and cores are dried and shipped to Germany. Arrangements are being made to convert the lower grades of tender fruit into jam.

Mr. Johnson was for some years on the executive board of the Ontario Fruit Growers' Association, and was for two years president. He was also president of the Cooperative Fruit Growers of Ontario for two years, and is now president of the Lambton Fruit and Vegetable Growers' Association, an organization composed of fifteen active cooperative fruit and vegetable associations in Lambton. Mr. Johnson was a delegate at the last Dominion Fruit Conference.

The Cooperative Marketing of Fruit *

A. E. Adams, of the United Fruit Companies, Ltd., of Nova Scotia, Berwick, N.S.

BEFORE taking part in any cooperative movement, however large or however small, it is absolutely essential one should thoroughly understand what cooperation really is, and what are its object of cooperation is, and what are its great and beautiful principles. Unless the membership of all cooperative organizations thoroughly understand this it is a difficult matter to make the movement a success.

What is cooperation? Cooperation is the power of individual effort associated for the common welfare.

Therefore, when allying himself with any cooperative movement, the individual must be prepared if necessary to make sacrifices, having absolute faith that if called upon to do so, the sacrifice, being for the good of all, is therefore ultimately for his own good. There is no place in any cooperative organization for the selfish, grasping, greedy man, for the very spirit of cooperation is unselfishness and a readiness to help one another, a splendid brotherhood of interests.

There are some people we meet who speak of the cooperative movement that has obtained such a firm footing in the Annapolis Valley as though it were something new, as though it were a dreamer's ideal, as though it were an experiment, but I can assure you that cooperation passed the experimental stage years and years ago, and is now recognized to be the only means of remedying many of the evils and disadvantages under which we labor.

The cooperative movement started, as most successful movements do start, very humbly, and has only succeeded by actual demonstration continuously maintained, that it is not only right in principle but that it is justified by its success financially.

The idea of cooperative effort was first evidenced in Scotland over one hundred years ago, but it was not until 1844—seventy years ago—that it took a really tangible form. In that year a number of Rochdale weavers, who had long been discussing various social problems, came to the conclusion that profits derived through dealings in the necessities of life, should be paid out on the same basis as they are paid in—that as they are first reckoned and obtained on the purchase price, they should be paid out as dividends on purchases, while capital should only receive a fair interest. This seemed to have been the original discovery by these Rochdale weavers. They held very strongly that profit made out of the people in front of the counter should be paid back to these people who created the profit after a fair interest had been paid on the capital required to maintain the business.

In ordinary business capitalists invest their money only when they have an assurance of a good return and there is no inducement to the capitalist to invest unless there is some indication that the business under consideration will give him a better return than, say, as your funds are invested. There is therefore no inducement to the capitalist to invest his money in a cooperative concern because he will never under any circumstance get a large return, and in addition it is contrary to true cooperative principles for outside

capital to be used. No cooperative concern works for profit and the difference between cost and actual return is rebated. It is true certain so-called cooperative organizations invite outside capital. I know of one in Canada that is advertising its stock for sale, but I wish to place it on record that such an arrangement cannot exist under a true cooperative system. In any true cooperative concern the only stock holders are the actual cooperators.

These Rochdale weavers tried the experiment of running a shop, or as we should call it, a store, that should belong to the customers and their efforts were attended with immediate success. It held the germ of a great ideal, that no individual should be allowed to amass a fortune out of the necessities of life to the community. Out of that humble beginning and out of that great ideal has grown that great, that mighty organization known as the Wholesale Cooperative Society of Great Britain, an organization with a yearly turnover exceeding \$608,000,000.

It must not be supposed, however, that this movement was allowed to grow without strenuous opposition. In this direction I would like to direct the attention of those who are so foolishly opposing cooperation in the Annapolis Valley, to history, which clearly demonstrates how futile is opposition, for cooperation has shown repeatedly that it has some great principle of life within it which makes it grow steadily. It makes an appeal to the cool reason of man unlike the hot pride and passion of war, and even, if I may say so, the enthusiasm of religion. Note how opposition acted as a spur to the humble pioneers of cooperation in England, and tended very largely to hasten its development.

The people who were most seriously affected by the Rochdale weavers were the retail merchants, for the cooperators considered these merchants unnecessary and expensive encumbrances between the manufacturer or producer and consumer. The merchants, therefore, through the press, which was largely supported by their advertisements, heaped ridicule on the movement.

This had the reverse effect to what was intended and simply directed attention to these several cooperative stores that had come into existence, and made people think that after all there must be something in what these cooperators were doing, with the result that many other cooperative societies were formed, and the membership of all existing societies was much increased.

Finding that their first move to destroy these societies had miscarried, the merchants tried other tactics, and through their association gave notice that any wholesale merchants or manufacturers having any dealings with the cooperators would be boycotted. At that time the cooperative societies were not many in number, and at first the boycott was a serious matter to them, but as is often the case, opposition caused them to adopt a more vigorous programme and carry their cooperative movement a stage further, resulting in all the societies amalgamating under one head, the present Cooperative Wholesale Society. The boycott I have referred to proved the finest advertisement the movement could have had, and proved to the world at large that cooperation was accomplishing what it set out to do. The natur-

al result was that the membership of the societies still further increased, and again many new societies came into being. All the societies collectively formed a very powerful organization, which being under the boycott immediately proceeded to make other arrangements for obtaining the goods necessary to run their business, and resulted in a still further strengthening of the movement.

The Cooperative Wholesale Society was formed in 1863. A sentence taken from the prospectus sums up in a few words the object of the whole movement. "The object of the society is to bring the producer and consumer of commodities nearer to each other, and thus secure for the working classes those profits that have hitherto enriched only the individual."

The Cooperative Wholesale Society is the central association for the subsidiary companies in the same way as the United Fruit Companies is the central for all the Cooperative Fruit Companies in Nova Scotia.

All the subsidiary societies operate large stores, in which are handled practically every article that one can imagine. These include groceries, drapery, millinery, furniture, hardware, fish, meat, poultry, dairy produce, and so forth, and in connection with each society there is a large bakery. The members can obtain absolutely everything they require in the world, through their own store. These subsidiary societies obtain all their supplies from the central, which acts as buyer, manufacturer and distributor. All the trade of the central is done in goods bought by their own buyers at home and abroad, and distributed to the retail societies from its warehouses. One general principle runs through all the purchasing done by the Cooperative Wholesale Society buyers, namely to go direct to the source of production, whether at home or abroad, so as to save the commissions of middlemen and agents.

In New York, Montreal, Spain (Denia), and Sweden the Cooperative Wholesale Society has purchasing depots with resident buyers, whose office it is to purchase and ship home the productions of these countries as required by English cooperators. On arrival in England the goods are divided among the warehouses at Manchester, Newcastle, London, Birmingham, Bristol, Cardiff, Leeds, Huddersfield, Blackburn, Northampton, etc., so that the subsidiary societies can conveniently draw their supplies as needed. The total amount of the goods imported direct by the Cooperative Wholesale Society from foreign countries in the twelve months ended December, 1910, was \$35,363,350.

(To be continued)

Mr. A. H. MacLennan, B.S.A., Demonstrator in Pomology, Ontario Agricultural College, Guelph, Ontario, has been appointed lecturer in horticulture at Macdonald College, P.Q., succeeding Mr. F. M. Clement, B.S.A., who has recently been appointed director of the Vineland Experiment Station, Ontario. Mr. MacLennan graduated from the Ontario Agricultural College in 1908, and for the past four years has been connected with the horticultural department at that institution, where he has had charge of the vegetable work, in which he has had a very wide experience. He has been closely identified with the Ontario Vegetable Growers' Association, and has done much valuable work for them in experimental investigations, and will prove a valuable acquisition to the staff of Macdonald College.

*Extract from an address delivered before the last annual convention of the Nova Scotia Fruit Growers' Association.

Administration of the Fruit Marks Act

By F. H. Grindley, B.S.A., Assistant Chief, Fruit Division

THE chief work of the Fruit Division is the administration of the Inspection and Sales Act, Part IX., commonly known as "The Fruit Marks Act." This Act, passed in 1901, was the result of a desire on the part of progressive fruit growers for an improvement in the methods of marketing fruit, in order to prevent complaints by the consuming public against fraudulent packing. With the passing of the Act, fruit inspectors were appointed for its enforcement. In those early days, on account of the ignorance on the growers' part of the provisions of the Act, much educational work was found necessary. Consequently, the inspectors spent a great deal of their time among the growers, in orchards, in packing houses and at public meetings. It was not till several years later that the initial leniency shown towards growers was lessened, and the inspectors began to rigidly enforce the Act. At that time all reports of inspection were sent to the Fruit Division at Ottawa, and when a prosecution was advised by an inspector, such prosecution was not carried on until authorized by the Fruit Division. Between 1907 and 1910 all cases of prosecution in Ontario were handled either by the Chief of the Fruit Division or his Assistant, and even before those dates many of the Ontario cases were handled from headquarters.

NUMBER OF INSPECTORS INCREASED

With the extension of fruit growing areas, and the consequent increase in production, there came the necessity for increasing the number of inspectors, in order that a fair percentage of the fruit packed might be satisfactorily examined. Since

1905 this increase has been gradual. In 1905 there were seven permanent and five temporary inspectors. Last year there were sixteen permanent and thirty-five temporary inspectors.

In the summer of 1912, in order that supervision of the inspection work might be more complete, the country was divided into five districts, with a chief inspector in charge of each. This change accounts for the large increase in the staff, and the result has been extremely satisfactory, in that it has brought about greater efficiency in the administration of the Act.

THE SYSTEM OF INSPECTION

Under the present system of inspection, there are five chief inspectors, covering the five districts: Maritime Provinces, Eastern Ontario and Quebec, Western Ontario, Prairie Provinces and British Columbia. These five supervise and control the work of a staff of forty-five inspectors and are in turn directed by and report to Fruit Division at Ottawa. Weekly reports are received at Ottawa from the entire staff, so that a complete record is always on hand of their movements. Reports of inspections are not now, as formerly, all sent direct to Ottawa. The chief inspector in each particular district receives the reports from his own district, handling violations at his own discretion, and sending other reports to Ottawa after personal examination.

The detailment of the various inspectors throughout the season is arranged, so far as their number will allow, to cover the main points of production and export. The several centres in the fruit growing districts, the larger towns and cities, and the

Douglas Gardens

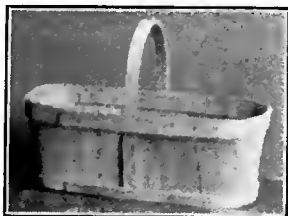
OAKVILLE, ONT.

We name below a few things that we desire to emphasize, viz.:

- ANEMONE JAPONICA, 3 vars., each 15c, 10 for \$1.25.
- AQUILEGIA (Columbine), 2 sorts, each 15c, 10 for \$1.25.
- ARABIS ALPINA (Columbine), each 15c, 10 \$1.25, 100 \$10.00.
- ARTEMISIA LACTIFLORA (New), a fine plant, each 25c.
- ASTERS (Michaelmas Daisies), planted in spring they bloom the following fall, 12 vars., each 15c, 10 \$1.25.
- BELLIS PERENNIS, should be 10c each, 10 for 75c, 100 \$6.00.
- DELPHINIUMS, Gold Medal Hybrids, each 20c, 10 for \$1.50.
- HELENIUM, RIVERTON BEAUTY and GEM, each 20c.
- HEMEROCALLIS, 3 sorts, each 15c and 20c.
- HEUCHERA ROSAMANDE, each 20c.
- KNIPHOFIA (Tritoma) PFITZERII, each 15c, 10 \$1.25.
- PANSIES, in colors for late blooming, each 5c, 10 45c, 100 \$4.00.
- PHYSOSTEGIA, 2 sorts, each 15c, 10 \$1.25.
- SHASTA DAISIES, 3 sorts, each 25c, 10 \$2.00.
- DAHLIAS, plant only, 10 sorts, each 15c, 10 \$1.25.
- GLADIOLUS, 3 unnamed sorts, 25 corvus, 60c, 75c and 80c.
- ANTIRRHINUM (Snapdragon), including Silver Pink, 10 60c.
- CHINA ASTERS, grown in pots, 6 sorts, 10 25c, 100 \$1.25.
- GERANIUMS, SALVIA, SCABIOSA, STOCKS, Etc.

JOHN CAVERS

Peerless Climax Fruit Baskets



**Heaviest, Strongest
and Best**

In the market. Especially suitable for long distance shipping. Last year the demand exceeded the supply

Therefore Order Early

**Canada Wood Products
Co.**

ST. THOMAS, ONT.

TO DESTROY APHIS, THRIPS, ETC.

Without Injury to Foliage

SPRAY WITH

"BLACK LEAF 40"

Sulphate of Nicotine

"Black Leaf 40" is highly recommended by experiment stations and spraying experts throughout the entire United States, also by Canadian experts.

Owing to the large dilution, neither foliage nor fruit is stained.

"Black Leaf 40" is perfectly soluble in water; no clogging of nozzles.

PACKING:

In tins containing 10 lbs. each, 2 lbs. each, and ½ lb. each.

A 10-lb. tin makes 1,500 to 2,000 gallons for Pear Thrips, with addition of 3 per cent. distillate oil emulsion; or about 1,000 gallons for Green Aphis, Pear Psylla, Hop Louse, etc., or about 800 gallons for Black Aphis and Woolly Aphis—with addition of 3 or 4 pounds of any good laundry soap to each 100 gallons of water. The smaller tins are diluted in relatively the same proportions as are the 10-lb. tins.

PRICES: In the United States, our prices for the respective sizes are as follows:

10-lb. tin, \$12.50; 2-lb. tin, \$3.00; ½-lb. tin, 85c.

IN CANADA, Dealers usually charge about 25% to 30% over the above prices because of the Canadian duty, etc. Consult your dealer about this.

THE KENTUCKY TOBACCO PRODUCT CO.

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FAVOURITE FLOWERS from the BEAUTIFUL OLD-FASHIONED GARDENS of ENGLAND

KELWAY'S famous Hardy Herbaceous Plants are modern developments of the old English favourites. The cottage "Piny Rose" has become the Pæony, incomparable in form, colour and fragrance. The old-fashioned Larkspur has developed into the stately blooms of the Delphiniums; Gaillardias, Pyrethrums and the rest, all serve to bring back the charm of the old-world English garden. Special care is taken in packing plants to arrive in Canada in good order, and they can be relied upon to thrive with a minimum of attention.

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Canadian Gardens



Direct from
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LANGPORT ENGLAND

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and make your Garden
glorious

ports of Montreal, Halifax, St. John, Quebec and Vancouver, are all under supervision during the busy season. The provinces are fairly extensively covered and care is taken to inspect fruit imported from the United States, the grade upon which must conform to those on Canadian packages. During the winter months when navigation is closed at Montreal, when Ontario fruit is being shipped from American ports, the Montreal inspectors, with one exception, are transferred to points in Ontario where fruit has been stored and inspections are then made of shipments from such points. At the end of the season the services of many of the inspectors are dispensed with, only sixteen out of fifty one being at present retained permanently. These men devote their time during slack season, as far as possible, to orchard meetings and other demonstration work.

In 1912 the position of "Apple Packing Demonstrator" was created, and a competent in packing and in platform speaking, now devotes practically his whole time at orchard and other meetings, demonstrating modern methods of fruit packing. The services of this man are always in demand, and much good has resulted from the work he has done.

No small task is the keeping of a thorough index, at Ottawa, of all inspection reports. Thousands of these are received during the season, and a tabulation made of the grower's name and address, number and kind of packages examined and the date and result of inspection. This index has been kept since the inception of the Act of 1901, and has been of great value in many cases where a grower's record has been desired.

Imported Nursery Stock

The quantity of trees, shrubs and other plants, including ornamental and fruit trees, all of which are classed as "nursery stock," imported into Canada is increasing annually. According to the place of origin these trees are fumigated or inspected under the Destructive Insect and Pest Act before their entry is permitted, to prevent the introduction of insect pests.

To increase the facilities for importing trees into western Canada, the Minister of Agriculture established an additional point of entry and a fumigation station at Neepawa, Sask., last summer. A new and larger fumigation station was also erected at St. John, N.B., to provide more accommodation and better facilities. Arrangements are now being made to erect an additional fumigation and inspection station at Niagara Falls, Ont., to meet the increased importations entering Canada via that port and destined chiefly to points in Ontario. The importation of nursery stock through the mails was prohibited from March 1st.

At a meeting in Morrisburg, Ont., of the St. Lawrence Valley Fruit Growers' Association, held on April 20th, it was resolved not to make another exhibit of apples at the fruit department of the Ontario Horticultural Exhibition in Toronto unless a law be made prohibiting Government men, inspectors, act, assist, or advise as packers, from acting as judges. One such official was said to have shown bias at the last show. In certain instances Baldwin apples were rated as a better apple than the McIntosh Red. Members of the Fruit Growers' Association of the St. Lawrence Valley tend there is no comparison between the two.

PURE - BRED ITALIAN QUEENS

AFTER JUNE 15th

Untested Queens \$1.00 each, \$10.00 a doz.
Warranted purely mated Queens \$1.10 each,
\$12.00 a doz. Tested Queens \$1.50 each, \$15.03
a doz. Breeding Queens \$2.50, \$5.00 and \$10.00
each. Liberal discount on large orders.

JOHN A. MCKINNON - ST. EUGENE, ONT.

BEES

We make a specialty of supplying Bees, Italian
Queens, supplies, etc., for Bee-keepers. Circulars
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ALISO APIARY CO.
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Italian Queens and Bees

NORTHERN BRED

Superior Wintress. Descriptive List free. Un-
tested, \$1.00. Sel. tested, \$1.50.
Plans, "How to introduce Queens," 15c.
"How to increase," 15c.; both, 25c.

E. E. MOTT, GLENWOOD, MICH., U. S. A.

THE BEEKEEPERS' REVIEW CLUBBING LIST

The Review and Gleanings one year, \$1.50.
The Review and American Bee Journal one
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All three for one year only \$2.00.
Canadian Subscribers add for postage as fol-
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THE BEEKEEPERS' REVIEW, North Star, Mich.

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Bred from Doolittles best Italian
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Order now to insure prompt de-
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five dollars.

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Safe arrival guaranteed

Send your consignments of APPLES to the
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who specialize in APPLES and PEARS dur-
ing the Season. Personal attention, prompt
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Artistic Plans, Sketches furnished for all
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Roots, Dadants, Ham & Nott's goods.
Honey, Wax, Poultry Supplies, Seeds, etc.

Write for a Catalogue

THE CHAS. E. HOPPER COMPANY
185 Wright Avenue, Toronto, Ont.

QUEENS

Tested, \$1.00 each; 3 to 6, 90c. each.

Untested, 75c. each; 3 to 6, 70c. each.

Bees per lb., \$1.50, no Queens.

Nuclei per frame, no Queens, \$1.50.

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Box 141, Buffalo, Texas, U. S. A.

**Bee Supplies
Bees and Queens**

Improved Model Hives
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Italian Queens
Bees by the Pound Packages
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EVERYTHING for the BEEKEEPER
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Highest Price paid for BEESWAX

F. W. JONES - BEDFORD, QUE.**BEES
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By quickest Express Service only
12 hours to St. Louis, Mo. U.S.A.
Untested Queens 75c. each, \$7.50
per dozen. Extra select tested, will
make good breeders, \$2.50 each,
Nuclei, \$1.25 per frame, no queen.
Young bees, no queen but full
weight \$1.50 per pound, with
queen \$2.25. Five or more with
queens at \$2.00 each.

THE STOVER APIARIES

MAYHEW, MISS., U.S.A.

**Sprayers****Sulfur Dusters**

For Fighting Every Disease of Cultivated Plants

Knapsack, Pack Saddle or Horse Drawn
Power Sprayers

Send for Catalogues
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VERMOREL Manufacturer,
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**BUY CARNIOLANS
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Pure Carniolan Alpine Bees
Write in English for Booklet and
Price List. Awarded 60 Honors.

Johann Strgar, - Wittnachs

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**PRICE LIST**

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**Three Banded Red Clover
Italian Queens**

Bred from Tested Stock

Untested Queens, \$1 each, \$5 for six
Selected untested, \$1.25 each, \$7 for six

Tested Selected Guaranteed Queens,
\$2 each

Cash With Order

W. R. STIRLING

Box 214 Ridgeway, Ont.

Famous Queens Direct from Italy

Bees more beautiful, more gentle, more
industrious, the best honey gatherers.
PRIZES—VI. Swiss Agricultural Exposition,
Berne, 1895.

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Geneva, 1896

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Belgium, 1896

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fort, O. M. (Germany), 1907.

Universal Exposition, St. Louis,
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The highest award.

Extra Breeding Queens, \$3.00; Selected,
\$2.00; Fertilized, \$1.50. Lower prices per
dozen or more Queens. Safe arrival guaran-
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ANTHONY BIAGGI

PEDEVILLA, NEAR BELLINZONA ITALIAN SWITZERLAND

This country, politically, Switzerland Re-
public, lies geographically in Italy and pos-
sesses the best kind of Bees known.

Mention in writing—The Canadian Horticulturist and
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Northern Bred Hardy Stock**Italian Queens**

from selected stock of
the best strain of
honey gatherers for
1914. Quick delivery
Cash with order.

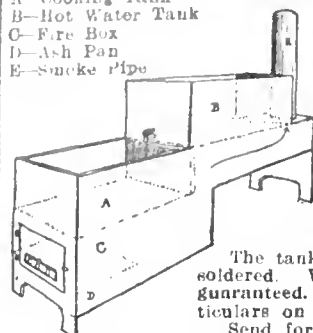
Prices—April till

June, Untested Queens, \$1.00 each;
6 for \$5.00; in lots of 25 or more,
75c. each. Selected Tested, \$2.00.
Breeders, \$5.00.

W. B. Davis Company

AURORA, ILLINOIS, U.S.A.

A—Cooking Tank
B—Hot Water Tank
C—Fire Box
D—Ash Pan
E—Smoke Pipe



Make Your Own Spray

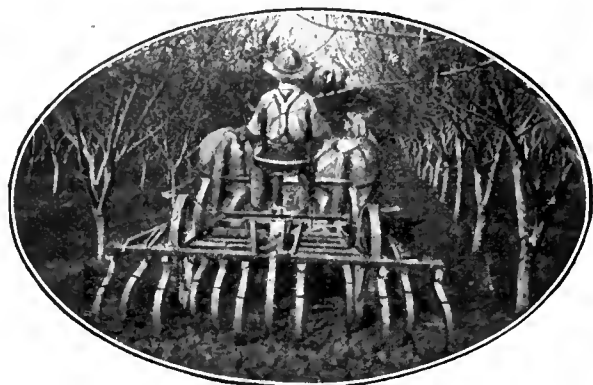
Home Boiled Lime Sulphur is being used in increasing quantities by leading fruit growers and fruit growers' associations. They find that by making their own spray they can effect a considerable money saving, and at the same time produce a preparation that will do the work thoroughly.

It is an easy matter to make home boiled lime sulphur. The chief essential is a proper spray cooker. We manufacture two kinds of cookers, one with a single tank, and one with a double tank. (See illustration.) They are designed especially for this purpose, and will give the greatest efficiency with the greatest saving of fuel. They can be used for either wood or soft coal.

The tanks are made of heavily galvanized steel, thoroughly rivetted and soldered. Will not leak. They are built to give satisfaction, and are guaranteed. Made in five sizes, capacity 30 to 75 gals. Prices and full particulars on application. Get your outfit now. Write us to-day.

Send for pamphlet illustrating the finest pruning saw on the market.

STEEL TROUGH & MACHINE CO., Ltd., TWEED, Ont.



Cultivate Underneath the Branches

With This Cultivator

A Massey-Harris nine-tooth Cultivator equipped with extensions, enables you to cultivate under the overhanging branches, close to the tree.

The attachment may be quickly removed when not required.

Frame and Sections are Angle Steel. Teeth are of Steel with Reversible Steel Points and attached so as to be readily adjustable.

Wheels are 29 inches high with $2\frac{1}{2}$ inch face and are on extension axles, permitting of change in the tread from 4 ft. to 4 ft. 10 in.

One lever raises and lowers both Sections.

MASSEY-HARRIS CO., Limited

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Annapolis Valley Notes

On April 16th, "The Valley" experienced a regular mid-winter blizzard. We have had no spring weather as yet, buds were not swelling, and summer seemed a long way off. The "oldest inhabitant" talks about the coldest spring on record.

In spite of the twenty below temperature in February, apple trees seem to have come through the winter in good condition. They give promise of an abundant bloom. Nova Scotia is noted for her regular bearing orchards, and all are looking forward to a bumper crop following the poor one of last season. Judging by the happy faces of the power sprayer agents, spraying will be almost universal this coming season; all farmers' and fruit growers' meetings this past winter the spraying question was thoroughly discussed, and from what one hears the lessons of the past two seasons have been pretty generally taken to heart. As soon as our people really grasp the idea that spraying for spot is an insurance that cannot be neglected without disastrous results, both to the quantity and quality of their crop, the Valley will take the premier place in Canada for profitable apple growing.

The members of the cooperative companies are enthusiastic over the showing made by the United Fruit Companies for the season just closing. Organization continues. Six new companies were formed this spring. All are uniting themselves with the Central Association.

A "Good Roads Association" was organized at Kentville last month, having for its object the improvement of the country roads throughout the Valley. This is not an automobile organization, as in some other places, but has its chief support from the farmers who are badly in need of better roads leading across the Valley to the various shipping stations on the railway. Proper drainage of the roadbed, and the increased use of the split log drag will be encouraged.—M.K.E.

The New Zealand Trade

Canadian Trade Commissioner Beddoe, stationed at Auckland, New Zealand, reporting to the Department of Trade and Commerce, at Ottawa, relating to the sale of British Columbia fruit in New Zealand, writes as follows:

The Canadian shipper at first took the risk of consignment, and finally receiving large orders for cash. The position now is: That, whereas in the first instance the shipper demurred to send on consignment it was pointed out that such an expression of confidence in his own goods would assist in their future sale. The sales by auction were very satisfactory. Then the shipper wanted to send again on consignment, it was suggested that the goods having been favorably received, it would be better to quote a price f.o.b. Auckland, as the market might vary. Shippers hesitated to do this and the result was that last shipments from Vancouver included a large quantity of American apples, and the price of United States and Canadian went down. This is mentioned to illustrate the importance of accepting local advice.

Another point of importance is, that too much space is given to the American product on the Vancouver boats. It seems inconsistent that the Canadian Government should subsidize steamers to carry foreign products which compete with the Canadian on this market, thus tending to lower prices.

Renew Your Subscription Now

PERENNIALS

Every plant grown from seed sown last year, and developed wholly in the open air. Most of the plants listed will not be ready for shipment till after May 1st.

Large Clumps

10c each \$1.00 dozen

Sweet William—Choice Auricula Eyed
Digitalis (Foxglove)—Large Flowered Mixed.
Aquilegia (Columbine)—Select Long Spurred Hybrids
Heuchera (Coral Bells)—Sanguinea.
Polemonium—Richardsoni.

From 3 inch Pots

8c each 60c dozen

(Except Hollyhocks)

Arabis Alpina (Rock Cress)—Single.
Orientale Poppy—Fine large Crimson Black Blotch.
Excelsior Strain, an Extra Fine Mixture.
Iceland Poppy—Mixed Colors.
Aquilegia—Long Spurred Hybrids.

10c each \$1.00 dozen

Hollyhocks, Double—Chater's Finest English Strain.
Mixed colors.

Medium Sized Roots

7c each 60c dozen

Chrysanthemum Maximum, Moonpenny Daisy (often called Shasta Daisy.

King Edward VII.

Calliopsis (Coreopsis)—Grandiflora.

Delphinium—A Fine Mixture.

Delphinium Chinensis—Blue and White.

Lupinus.

Polyphyllus Mixed.

Lobelia Cardinalis.

Sweet Rocket.

Sweet William—3 splendid varieties in mixture.

Digitalis Ambigua.

At 5c each 50c dozen

Forget-Me-Nots—Several Colors.

English Daisy—The Bride, white, very free flowering, long stems.

Pansies—A grand mixture from named varieties.

ALSO

Strong Potted Plants, 75c per dozen, \$5.00 per 100.

SALVIA—Drooping Spikes. The finest of the tall Salvias. Ready May 10.

PENTSTEMON—Select Scotch strain. Ready May 10.

SPECIAL

Beat your neighbors, and have the first ripe Tomatoes in your neighborhood. Full of fun and interest you will find it. Eat fine, fresh fruit from your own vines, instead of buying flavorless tomatoes at 15c per lb. Ready May 10th.

BONNY BEST—The best of the Extra Earlies. Very large potted plants. 12 for \$1.00; 25 for \$6.00.

EARLIANA—The earliest of them all. Large potted plants. 20 for \$1.00; 25 for \$4.00.

All our tomato plants are hardened off properly in open air. They have travelled in good condition 1,000 miles.

TERMS: CASH

Plants will be sent by express, unless otherwise arranged for.

RYERSE BROS., SIMCOE, ONT.

Double The Yield of The Garden

GEM GARDEN COLLECTION

This Complete Collection will stock a moderate-sized Kitchen Garden throughout the Season.
\$1.00, Postpaid.

1 lb. Beans... Dwarf Stringless Yellow Pod.	1 pkt. Onion... Early, Slicing.
1 lb. Beans... Dwarf Stringless Green Pod.	1 pkt. Onion... Early, Boiling.
1 pkt. Beans... Dwarf Bush Lima.	1 pkt. Parsnip... Long White.
1 pkt. Beet... Round Red.	1 lb. Peas... Earliest Dwarf.
1 pkt. Cabbage... Early.	1 lb. Peas... Medium Early Dwarf.
1 pkt. Carrot... Intermediate Red.	1 pkt. Radish... Early Round Red.
1 lb. Carn. Early Sugar.	1 pkt. Squash... Marrow.
1 pkt. Cucumber Slicing.	1 pkt. Tomato... Early Smooth Scarlet.
1 pkt. Lettuce... Cabbage Heading.	1 pkt. Turnip... Round, White Table.

WM. RENNIE CO. Limited

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Also at Montreal, Winnipeg and Vancouver.

With Rennies Seeds



He's Big All Over And Good All Through

Big Ben is built for *endless* service. He has no "off-days," no shut-downs. His four years of existence have been one long record of on-the-dot accuracy. 7,000 Canadian dealers say that he does more *efficient* work for less pay than any other clock alive.

A Big Ben battalion, over 3,000 strong, leaves La Salle, Illinois, every day. Their sparkling triple nickel-plated coats of implement steel; their dominating seven-inch height; their big, bold, black, easy-to-read figures and hands; their big, easy-to-wind keys—all make Big Ben the world's master clock.

In return for one little drop of oil, he'll work for you a full year. From "Boots on" to "Lights out"—365 times—he'll guarantee to tell you the

time o' day with on-the-dot accuracy.

He'll guarantee to get you up either of TWO WAYS—with one long, steady, five-minute ring if you need a good big call, or on the *installment plan*, with short rings one half-minute apart for ten minutes, so you'll wake up *gradually*, and he'll stop short in the middle of a tap during *either* call if you want to shut him off.

Big Ben is a mighty pleasant looking fellow. His big, open honest face and his gentle tick-tick have earned him a place in thousands of *parlors*.

The next time you go to town call at your dealer's and ask to see Big Ben. If your dealer hasn't him, send a money order for \$3.00 to his makers—Westchex, La Salle, Illinois—and he'll come to you prepaid.

Eastern Annapolis Valley

Ennice Buchanan

Last month I mentioned that I said no sign of aphid on the first batch of apple twigs brought into the house, but on a second lot of Kings and Blenheims brought in later there were aphids.

The demand for nursery trees is not great owing to scarcity of cash. Last year although the season finished with good prices for fruit, the apples were badly spotted and did not pack up to expectations; the year before also produced spotted fruit. However, most of the growers intend to spray more thoroughly than ever, and more than one air-tight sprayer is being imported from the United States.

The forests and shelter belts are rapidly falling before the axe, and already one feels the effects of the strong cold winds as they sweep along the Valley.

The spring is unusually late (some years we have peas planted by the last of March). Snow fell on April 12th, and the following day was very cold, with icicles hanging all day, although we have had days this year with the thermometer as high as 60 degrees.

At this time of the year one is tempted to compare the spring here with that of England, where the snowdrops come in February and the daffodils and narcissi are in full swing in April, and where the fruit trees blossom long before those in Canada; but when autumn comes the tables are turned, for the Canadian fruits are ready to harvest just as soon as the English.

Seed potatoes from Nova Scotia have now also been prohibited in Bermuda; so those growers who have saved their crops for better prices are apt to be disappointed.

Many Englishmen are filling the places of the native hired man (who does not find things as alluring in the States as formerly), so wages are not likely to go higher yet awhile (the highest is about \$40 per month and house). There are many applicants for work, and this year the farmers need to economize; many of them do not care to keep men all winter, or more than one. Pruning has been going on during March and April, but there have been days when the average farmer was puzzled to find a job for his men. The old buck saw and horse are resting on many farms while the gasoline engine cuts the cordwood into stove lengths.

Another cooperative fruit company has been formed in Cambridge, King's county, N.S., with Mr. J. G. Webster as president.

Australian fruit is arriving in England—this, and the poor condition of Nova Scotian fruit on arrival has resulted in a bad drop in prices. The highest being \$4.39 for No. 1 Nonpareils, and \$2.30 for No. 3's. Ben Davis ranging from \$3.76 to \$2.80; Gano, \$4.10 to \$2.80.

Experimental Work at Ottawa

Four new greenhouses erected for the Horticultural Division at the Central Experimental Farm, Ottawa, are nearing completion, and already two have been occupied. They are what is known as the Pier-son-U-Bar Flat Iron Curved Eave Construction, and will give about seven thousand five hundred square feet under glass. They are heated with hot water from sectional boilers and consist of a main house one hundred and seven feet, six inches long, and twenty-five feet wide, divided into two by a glass partition, and three detached houses twelve feet apart on one side of it, each fifty-eight feet six inches long and

enty-five feet wide, and each connected
h the main house by a glass portico.
e main purposes to which these houses
l be put are as follows:

Five different kinds of benches are being
talled which will be tested for relative
fulness and desirability. On these and
the solid beds on the ground different
ethods of culture of flowers, vegetables,
d of some fruits will be tried.

The cross-breeding of flowers, fruits, and
vegetables will be carried on during the
inter months and selections made from
existing varieties or strains. A specialty
l be made of the testing of florists'
velties and reporting on the same. Al-
ough tomatoes, radish, and lettuce are
winter vegetable crops usually grown,
has been found that other kinds of vege-
bles succeed well when forced, and ex-
periments will be tried with a variety of
ps.

Experiments will be conducted in the
cing of strawberries, grapes, and other
its. This winter several hundred pots
strawberries are being forced with the
fect of learning which succeeds best.
Fifty pots of fifteen varieties of European
apes are being forced, it being believed
t there will be a growing demand for
se grapes in Canada. Being in pots the
es do not take up space permanently in

the houses, but can be moved about when
necessary. In England grapes are success-
fully forced in this way. A large number
of plants are needed for bedding on the
ornamental grounds at the Central Farm,
and the greenhouses will be utilized for
propagating these.

Experimental Cold Storage Warehouse

The experimental cold storage warehouse
for fruit which the Dominion Department
of Agriculture is erecting at Grimsby, Ont.,
is now nearing completion. This ware-
house, which has been erected according
to the design of the Dairy and Cold Stor-
age Commissioner, Mr. J. A. Ruddick, is
intended to afford facilities for carrying on
experiments in the cold storage of different
varieties of fruit, and also in demonstrat-
ing the value of pre-cooling for long dis-
tance shipment.

The total refrigerated space is about
fifty thousand cubic feet. There are four
rooms on the ground floor, each with a
capacity of fully two carloads of fruit. The
basement floor contains one large room
and a separate chamber for experimental
purposes. The warehouse is equipped with
what is known as Cooper's gravity brine
system, with special facilities for a quick
cooling in two or three chambers at a time.

STRAWBERRY PLANTS

For sale. Fine stocky, well-rooted plants.
Eleven tested varieties. Write for list and
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Apple Evaporating Machinery

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millwrights are the most practical, sanitary
and labor saving to be found anywhere. Our
prices and terms always reasonable.

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The Best in the Market

HEWSON & FARRELL

GRIMSBY Box 536 ONTARIO

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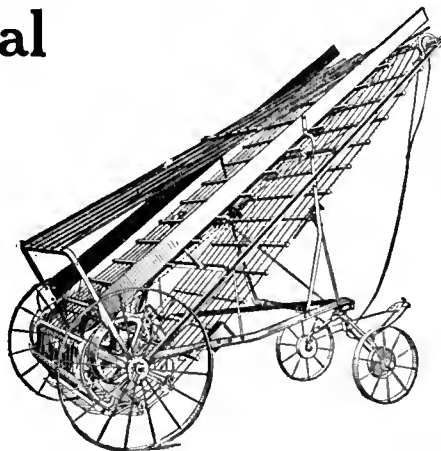


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WHEN haying time comes you can-
not control weather conditions,
but you can make the best of them if you
use the rakes, tedders, stackers, loaders,
and sweep rakes sold by I H C local agents.
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sheds you can come out of the least favor-
able weather conditions with the highest
percentage of bright, well cured hay.

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case of accident. It is their business to see that you
are satisfied with the I H C haying machines and
tools you buy from them. You cannot go wrong
if you buy only haying tools with the I H C trade
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of the nearest agent handling I H C haying tools,
and catalogues on the machines in which you may
be interested.

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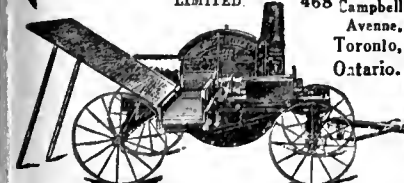
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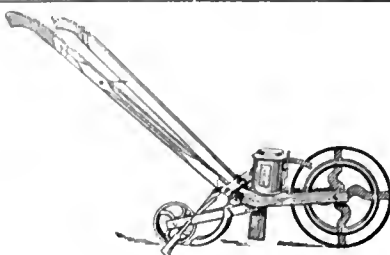
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Are as necessary to the improvement of your parks as flower stock. When making your plans for this year's park improvement, include our PARK SEATS.

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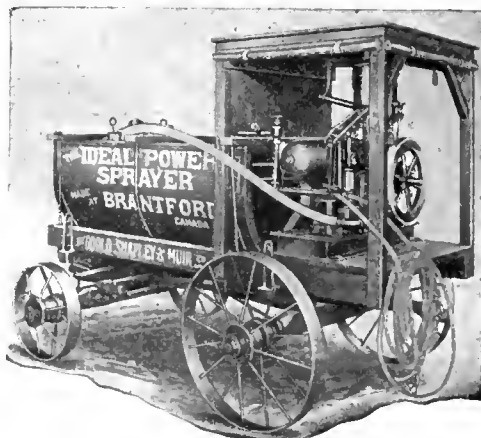
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Catalogues describing our different lines, sent on request

GOOLD, SHAPLEY & MUIR CO. Ltd., Brantford, Ont.

The fruit growers of the district will afford the facilities of the warehouse payment of the usual charges for service. The warehouse is conveniently located next the public school grounds the village of Grimsby, and a siding for the electric railway has been laid down for convenience in shipping.

The services of Mr. Edwin Smith, B.S., who has been engaged during the past two years on cold storage and transportation work in British Columbia, have been secured to take charge of the establishment under Mr. Ruddick's direction. Mr. Smith has had special training in fruit work, and is well qualified to carry out the details of such experiments and demonstrations as may be undertaken. He will assume his duties about the first of May.

Poison on Apple Peel

Canadian Trade Commissioner J. Ray, stationed at Birmingham, Eng., sent the following report to the Department of Trade and Commerce, at Ottawa:

The following paragraphs appear in the current issue of the London Daily Telegraph:

Some consternation has been caused by a letter which has appeared in the press on the subject of poison on apple-peel. Maurice S. Salaman, analytical chemist, has drawn attention to the presence of a deposit of copper sulphate (blue vitriol) with some admixture of lime on certain 'imported apples of excellent quality and flavor.' The analyst's letter says:

'Samples of imported apples of excellent quality and flavor were brought to me today, in my professional capacity, with inquiry concerning what was described as a peculiar green mildew near the stalk. I proved on analysis not to be a mildew, but a deposit of copper sulphate (blue vitriol) with some admixture of lime, and was evidently left behind in spraying the fruit against parasites.

'The presence in appreciable quantity of rank poison, and this of a partially cumulative kind, in fruit largely eaten by children, is so grave a public danger that your assistance is urgently asked in calling attention to it.

'Apples having any sign of green deposit in the stalk cavity should not be eaten unless peeled.

'But surely some steps should be taken to stop the importation of fruit thus dangerously contaminated.'

An exhaustive examination of the apples now on the market revealed the fact that the only variety affected was the Albemarle Newtown. Unfortunately this happens to be the best flavored apple available at the moment. But all Albemarles have not a poisonous deposit in the cavity which holds the stalk. The bulk have been carefully washed before shipment from America. Nevertheless, nobody is anxious to take the risk of eating poisonous matter, and that need be done is carefully to wash the apple if one is desirous of eating the peel. If in addition the peel is removed then the danger disappears.

In less than a week the first cargo of apples from Australia is due on the market, and it is to be hoped that the public will not allow the colonial growers to suffer from the cause of the trouble which has arisen from the American Albemarle Pippin. In any case a peeled apple is quite safe. According to the analyst, no deleterious substance has been found beneath the skin.

CARNIOLAN QUEENS

Carniolans are excellent winterers, build up rapidly in the spring, enter supers rapidly, are gentle and the best of honey gatherers. Ask for our free paper, "Superiority of the Carniolan Bee."

Untested, \$1.00 each; dozen, \$9.00.
Full Colony in 8 fr. dovetail or Danz 10 fr. hive, \$10.00 f.o.b. here.

ALBERT G. HANN

Carniolan Queen Breeder - Clinton, N.J., U.S.A.

Superior Golden Queens

that produce workers for honey. The gentlest bees on the earth to handle and the yellowest. Untested, each \$1.00, six \$5.00. Tested, \$2.00 to \$3.00. Breeders, \$5.00 to \$10.00.

J. R. BROCKWELL. BARNETTS, VA., U.S.A.

THIS WASHER MUST PAY FOR ITSELF.

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse, but, I didn't know anything about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right," but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse was not "all right" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now, this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way. So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing the clothes. Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges, nor break buttons, the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight, too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 50 cents a week, send me 50 cents a week 'till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me personally:
K. H. MORRIS, Manager, 1900 Washer Co., 357 Yonge St., Toronto, Ont.

**☞ Mother's Day**

Mother's Day this year will be observed on May 10th. Probably no custom has met with such instantaneous and general approval in such a short space of time as has Mother's Day. Year by year the number of churches and other public institutions that refer to the practice of sending flowers or writing to our Mothers, or wearing flowers in their memory, that is encouraged by the observance of this day, has been increasing. This year the day is likely to be more widely observed than ever before. Horticultural societies should help on the good work.

Recent Publications

Copies of the following publications have reached The Canadian Horticulturist during the past few weeks: "The Apple in Pennsylvania: Varieties, Planting and General Care," being bulletin No. 128, issued by the State College, Central College, Pennsylvania; "Home-Made Cider Vinegar," by Walter G. Sackett; Bulletin 192 of the Agricultural Experiment Station, Fort Collins, Colorado; "Potatoe Diseases in New Jersey," being circular 33, and "An Analysis of Materials sold as Insecticides and Fungicides," Bulletin No. 262, of the New Jersey Agricultural Experiment Station, New Brunswick, N. J.

The Agricultural Experiment Station, Orono, Maine, has issued two bulletins, one dealing with "Woolly Aphid of the Elm," being Bulletin No. 220, and the other "Spraying Experiments and Apple Diseases in 1913," being Bulletin No. 223. The latter is particularly interesting.

The Connecticut Experiment Station, New Haven, Conn., is distributing Bulletin No. 182, entitled, "The Brown-Tail Moth." This bulletin is well illustrated and gives valuable information relating to this pest. It should be of special interest to fruit growers in those portions of the Maritime Provinces where this moth has made its appearance. Bulletin 181 by the same station is entitled, "Some Common Lady Beetles of Connecticut."

The Ohio Experiment Station of Wooster, Ohio, is sending out Circular No. 143, entitled "The San Jose Scale, The Oyster Shell Bark Louse and Scurfy Bark Louse," by J. F. Houser, and Circular No. 140, being an abridgement of Bulletin 264, entitled "Orchard Bark Beetles and Pin Hole Borers."

The Agricultural Experiment Station of the University of Wisconsin, Madison, has issued a valuable bulletin entitled "The Control of Damping-off Disease in Plant Beds."

The ninth annual report of the Ontario Vegetable Growers' Association is being distributed by the Ontario Department of Agriculture of Toronto, and the report of the proceedings of the 59th annual meeting of the Western New York Horticultural Society, is being sent out by Secretary John Hall, 204 Granite Bldg., Rochester, N.Y. This report deals with an unusually large number of interesting subjects.

"The Modern Gladiolus Grower," is the title of a new publication intended for both amateur and professional growers of gladioli, which is being published monthly by Madison Cooper, Calcium, N.Y. It contains articles of special interest to gladioli growers.

MILLER'S STRAIN ITALIAN QUEENS

By return mail after June 5th to 10th, or money refunded; bred from best red-clover strains in United States, in full colonies; from my Superior Breeders, northern bred, for business, long tongued, leather color or three banded, gentle, winter well, hustlers. Not inclined to swarm, roll honey in.

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New Cyclopedia of Horticulture

The Canadian Horticulturist is in receipt of the first volume of Prof. L. H. Bailey New Standard Cyclopedia of Horticulture. The first volume contains some six hundred pages, and if the remaining five volumes of the set equal the standard set by this first volume the set will establish a new standard of excellence for works of this character. This new Cyclopedia of Horticulture (second edition of the original Cyclopedia) has been freshly written in the light of the most recent research and experience. It is not merely an ordinary revision or corrected edition of the old cyclopedia, but is new work, with enlarged boundaries geographically and practically. It supersedes and displaces all previous editions or reprints of every kind whatsoever.

It is the fullest and the most authoritative work of its kind and constitutes the most conscientious attempt that has been made to compress the story of our horticultural thought, learning and achievement into one set of books. The text is under alphabetical arrangement and is supplemented by a synopsis of the plant kingdom, a key to identification of species; a list of specific plant names with their meanings translated into English and their pronunciation given; a glossary with definitions of technical terms and a general index. Every name in the cyclopedia is also pronounced in its regular entry.

In its approximately four thousand genera, fifteen thousand species, forty thousand plant names, in clear and concise arrangement, this cyclopedia opens a knowledge of plants and growing things not to be found in any other horticultural work. It presents the combined labor and experience of the foremost North American authorities on horticultural subjects. The six volumes place at the disposal of the horticulturist, whether practical, amateur or scientific, an account of practically every subject which at any time may be of interest or use in horticulture. Its range is wide, covering plants, flowers, vegetables, trees, tillage processes, tools and implements, cultural discussion, botanical history, geography, commercial markets and myriad items that only constant use will reveal. The scope of the volumes has not been confined to botanical subjects alone, but every subject in any way incident to the activities of the horticulturist has been covered, commercially as well as scientifically. The publishers are The Macmillan Company of Canada, Limited, 70 Bond Street, Toronto, Ont.

Mr. Wm. Armstrong, Niagara River Fruit Farm, Ontario, will this season introduce a new fruit package. This package will be a crate holding about one bushel of fruit. It will contain a number of small crates, each holding one dozen or more (say peaches). Each peach will be wrapped so as to expose to view a small portion of each peach in the crate, and thus facilitate immediate inspection by all concerned. This crate will be useful as a cold storage package, as it provides for a free circulation of air through every part. Twenty-five years ago Mr. Armstrong introduced a new thirty-six quart berry crate which proved a success.

The British Columbia Department of Agriculture had one of its representatives give a series of demonstrations of top working apple trees during April in several of the leading fruit districts of the province.



MOST PERFECT MADE

THE INCREASED NUTRITIOUS VALUE OF BREAD MADE IN THE HOME WITH ROYAL YEAST CAKES SHOULD BE SUFFICIENT INCENTIVE TO THE CAREFUL HOUSEWIFE TO GIVE THIS IMPORTANT FOOD ITEM THE ATTENTION TO WHICH IT IS JUSTLY ENTITLED.

HOME BREAD BAKING REDUCES THE HIGH COST OF LIVING BY LESSENING THE AMOUNT OF EXPENSIVE MEATS REQUIRED TO SUPPLY THE NECESSARY NOURISHMENT TO THE BODY.

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Back Yard Improvements

E. L. Dyer, Toronto, Ont.

In Toronto, through the efforts of Parks Commissioner Chambers, The Health Department, Civic Guild and Ratepayers' Association, a "clean-up and open-up" campaign has been started, and in some sections, neighbors are cooperating with each other to tear down the shabby, unsanitary, germ-breeding, old wooden fences, and erecting in their place, a neat, handsome, ornamental lawn fence.



How the Back Yards Used to Look

The views here reproduced show the old wooden fence, and two months later, the wonderful improvement and handsome appearance the ornamental fences have made. Here you see unsightly yards transformed into miniature parks. Fresh air and sunshine have full play and the shrubbery, vines and plants are in a healthy, thrifty condition.

An artistic fence like this around a house is like an artistic frame around a painting. It's not absolutely necessary, but nearly so. Home improvements of this nature cost so little, the wonder is that people generally have not adopted them. Modern conditions demand such improvements. Ornamental lawn fences in either iron or wire, are the only logical solution of the city backyard problem.



Improvement Some Ornamental Fences Made

Board fences keep out the sunlight and fresh air, afford a hiding place and dumping ground for garbage and filth, and are unsanitary. In some American cities by-laws against the erection of board fences are in force. Detroit is a notable example. The time is not far distant when Toronto and other cities will have similar by-laws.

Ornamental iron and wire fences let in fresh air and sunshine, and generally have the effect of turning dumping grounds into gardens with flowers, mudholes into green lawns, and transforming "eyesores" into beauty spots. They automatically cause people to obey sanitary laws by making them ashamed to have their back yards revealed as what they are to all who care to look.

A good orchard, well attended, is the most profitable branch of the average farm.—E. E. Adams, Leamington, Ont.



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BERLIN FIRELESS COOKERS at better than factory prices to you—A Great Big Bargain. 1 compartment, price regular \$8.00, now only \$5.50; 2 compartments, regular price \$12.00, now only \$8.00. Write at once to make sure of yours.
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For neat Egg Markers for Circles or Individual Poultrymen

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will sow, cultivate, ridge, furrow, etc., better than you can with old-fashioned tools and ten times quicker. A woman, boy or girl can do it. Can plant closer and work these hand tools while the horses rest. 38 combinations from which to choose at \$3.00 to \$14. One combined tool will do all of the work. Ask your dealer to show them and write us for booklet, "Gardening With Modern Tools" and "Iron Age Farm and Garden News" both free.
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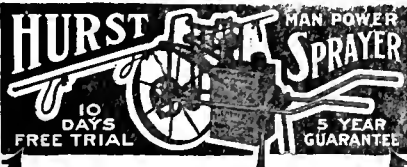
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READ THIS OFFER

I will send you this machine on 10 days' trial, without your advancing one cent. If satisfied with it keep it and pay on terms to suit. If not, send it back at our expense. WE PAY THE FREIGHT. This free trial backed by our 5-year guarantee and over 27 years' experience in making sprayers insure you complete satisfaction. Send to-day for my big

Free Book and Money Saving Offer

This offer is made to the first buyer in each locality. Write me today—be the first—and I will send the offer and the book in the first possible mail.

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BEZZO'S FAMOUS PRIZE ASTERS

Prizes New York State Fair, Canadian National Exhibition, Toronto; Berlin Horticultural Society, 1910-11-12-13.

Violet King, Rose King, Royal White, Royal Lavender, Royal Pink, Royal Purple, Rochester Pink, Peerless Pink, Salmon Pink, Improved Oregio Pink, Queen of the Market White or Pink, Branching White, Rose, Pink, Lavender, Crimson, Mikado White. These are very truly the aristocrats of the Aster family. All plants sent by Express (unless otherwise arranged) to any part of Canada and guaranteed to arrive in good condition. Price, \$1.00 per hundred, packed and labelled separately in wet moss. Express prepaid on orders amounting to more than \$2.00. Special prices to Horticultural Societies. All plants cold frame (not hot-bed) grown, and with favorable weather will be ready last week in May. Order early as the quantity is limited.

C. MORTIMER BEZZO

BERLIN, CANADA

WHILE THEY LAST

In order to clear out the remaining copies on hand of **The Canadian Apple Grower's Guide**, we are making a clubbing offer with **The Canadian Horticulturist** of **less than half price**. This book is written by Linus Woolverton, M.A., and is one of the leading authorities on Fruit Growing, and should be in the library of every fruit grower.

The Canadian Apple Grower's Guide \$1.50

The Canadian Horticulturist 60

Regular Price \$2.10

OUR SPECIAL OFFER, \$1.25

For One New or One Renewal Subscription.

If your subscription expires this month take advantage of this **Extra Special Offer** when renewing. Write to-day.

Address Book Department

THE CANADIAN HORTICULTURIST

PETERBORO, ONT.

Control of Steamboat Traffic

The Ontario Fruit Growers' Association, through their Transportation Committee and Traffic Officer, Mr. G. E. McIntosh, have for the past two years been carrying on an investigation of facilities afforded by the transportation companies for the handling of the fruit shipments of the province.

Included in a very complete report by Mr. McIntosh on this work presented at the annual meeting of the growers held in Toronto last November, were several recommendations for amendments to the Railway Act, whereby the jurisdiction of the Board of Railway Commissioners would be greatly extended. These were endorsed and submitted to Mr. J. E. Armstrong, the energetic member for East Lambton, who consented to bring them before Parliament.

This was done several weeks ago by Mr. Armstrong, in the introduction of Bill No. 85, the first clause of which compels all steamboats engaged in carrying freight from any port or place in Canada to another port or place in Canada to file their traffic agreements, tolls, classification of freights and traffic, with the Railway Commission. All questions of the places along the line of route where steamboats shall call for traffic, and the time of call, and the duration of stay, shall be subject to the approval and control of the Board.

It is interesting to note that there are over eight thousand boats in Canada which will be affected by this legislation, and of the total tonnage carried by these boats the agriculturists contributed nearly twenty per cent. Figuring the amount spent by the Government in keeping up the waterways, the average cost per ton for lake transportation in Canada in 1913 was 99.37 cents, compared with 55.19 cents for American traffic. It is only reasonable to expect that the people of Canada through the Government and Board of Railway Commissioners, should have a voice in the control of the steamboat companies, when we consider that the capital cost of Canadian canals up to the present time is \$105,656,037, and the cost of maintenance last year alone amounted to \$1,603,080.

For many reasons, therefore, this clause of the Bill is looked upon as one of the most important pieces of legislation advanced during the present session.

Another clause gives the Board control over all privileges and concessions given by any company to any person, the Board having power to order such privilege or concession be discontinued or modified or granted to any other person.

The last clause deals with the shipping of fruit in particular. In years gone by, men have been compelled to see their product, which has been carefully gathered and packed under the regulations of the Fruit Act, thrown in and out of cars and handed in a careless, reckless manner. Of the total shipments last season ten per cent. was damaged or pilfered. The railway and express companies seem utterly incapable to compel their employees to handle these products properly. This unfortunate state of affairs the Bill overcomes by imposing a fine on wilfully destructive employees.

With the adoption of Mr. Armstrong's Bill, one of the most embarrassing shipping problems for the fruit industry will be effectually solved.

That it is a popular piece of legislation is evidenced by the number of Boards of Trade throughout the province which have endorsed it and petitioned the Government

Where does it go?

is the most important question that should be asked, concerning the circulation of any magazine.

It's far more telling from the advertising standpoint than the question "How Many?"

It's quality rather than quantity that counts every time.

The Canadian Horticulturist

offers a high quality service to advertisers. It enters the homes of Canadian fruit growers and beekeepers, who are acknowledged to be the wealthy and progressive rural people of Canada.

When Making Your Plans

for next year, why not decide to include it?

"Ask and ye shall receive" detailed circulation statement and all other information at our disposal.

The Canadian Horticulturist

PETERBORO, ONT.

to have it become law, among the number being Toronto, Hamilton, St. Catharines, London, Sault Ste. Marie, Sarnia and Goderich, while several municipal councils have also sent in their approval.

The first clause of the Bill relative to navigation companies has been included in the Consolidated Railway Act, but the remaining clauses will come before the House again.

How Apples are Sold in Great Britain

Special Correspondent of the Canadian Horticulturist

In the fruit sales rooms of Great Britain a catalogue is made, generally about twenty or thirty barrels going to the lot, each lot of course being numbered. In a straight line of fruit, one may often see twenty or thirty lots of the same class of goods, but in a mixed lot various kinds are sold together in lots of twenty or more different kinds of apples. These mixed lots are not over popular with the buyers and growers should avoid mixtures as far as possible. On no account put two kinds of apples in the same barrel.

Out of each lot, or run of lots, of similar stuff, appearing on the catalogue, one or sometimes two sample barrels are sent up to the saleroom and each one is shot out for the inspection of the buyers as the previous lot is being bid for, so that all may see the quality of the goods all the way through. To save time the samples come up the hoist with the heads of the barrels knocked off, and are immediately turned right out into big baskets. At the end of the sale all the samples are sold together as one lot, and often at a very much lower price than the bulk has made, owing to their having been turned out. As soon as a buyer has bought all he wants he obtains an order from the office for the delivery of his goods in the usual way and is generally allowed a bare week in which to settle, the brokers naturally being very strict on the point of credit, although a firm may be good for very much more than the amount involved.

The selling by private treaty by those salesmen who, either from choice or otherwise, are outside the brokers' ring, does not call for much description. The goods are examined by the prospective buyer and are sold for what they are worth in either large or small parcels according to requirements. No particular selection or sampling takes place, but naturally the best and most perfect stuff makes the best prices. A barrel is perhaps opened here and there in the parcel, but with such dexterity that the goods are not upset nor in any way deteriorated for sale. Mention might be made of the tool used for opening the barrels. It is a short handled hammer of the adze shape, with a claw at one end and a square head at the other. It is very light, but in experienced hands quite powerful enough to get the head off a barrel with two or three well directed blows.

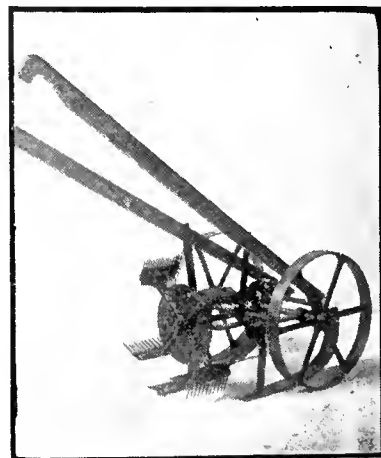
I would like to impress upon growers the vital importance of keeping their packing and grading well up to the standard. Competition is so keen amongst the retail trade, to say nothing of the dealers, that buyers will insist on having the best stuff if they are paying best price, and it is no longer possible to run a lot of inferior stuff in, even if it were politic. Growers should aim at making their own brand the best and most reliable they possibly can, and if they do that consistently there will be no trouble in disposing of the goods at this end, as no one has a better memory for the virtues, and more especially, for the failings of a particular mark than has the buyer.

FRUITLAND NURSERIES

are offering for sale a general assortment of first-class Fruit Trees, Bushes, Vines and Ornamental Shrubs, etc., at very low prices. Our catalogues are just out. It will pay you to send for one.

G. M. HILL, Box 42, FRUITLAND, ONT.

Onion Growers



Do you intend to have any weeds in your onions this year? If so, ask me for literature which describes a machine that will separate the weeds from the onions, practically doing away with most hand weeding. Don't delay. Act quickly if you want to secure a weeder this season.

R. G. Bruner, Manufacturer
OLINDA, ONT.

Repeat orders are the best recommendation READ THIS

The Sherwin-Williams Co.
Mgr. Insecticide Dept.
Montreal

Dear Sir:—

I heartily recommend the use of Sherwin-Williams New Process Arsenate of Lead, and in proof of such, kindly accept my order for another 1,000 lbs., to be delivered to us with the 1,000 lbs. that I gave you some time ago.

Yours very truly,

FATHER LEOPOLD

Horticulturist at the Oka Institute, President of the Pomological and Fruit Growers Society of the province of Quebec.

THE SHERWIN-WILLIAMS Co.
of Canada, Limited

MANUFACTURERS OF INSECTICIDES

Offices and Warehouses:

Montreal, Toronto, Winnipeg, Calgary, Vancouver, Halifax, N. S., London, Eng.

Progressive Jones Says:

"Intensive Market-Gardening Means Intensive Fertilizing"

It is intensive market gardening that pays largest profits. If you want to make each plot of ground yield its utmost,

I advise you to use Harab Fertilizers.

Harab FERTILIZERS

By fertilizing the Harab way you build up the soil as well as greatly increase and improve your yield. There are many different combinations of Harab Fertilizers, each of which is particularly suited to

the crop for which it is recommended.

The Harris Abattoir Company will be pleased to send you their useful fertilizer booklet free. Send your name to-day direct to the Company or to nearest agency.



*Yours for bumper crops,
Progressive Jones*

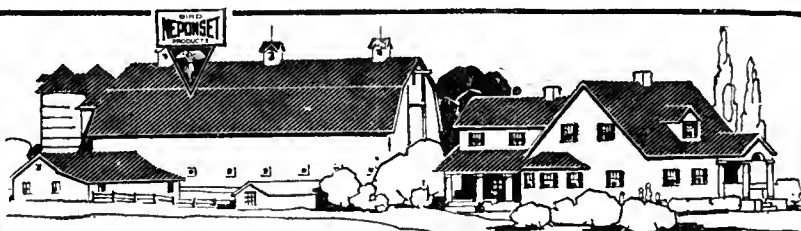
The Harris Abattoir Co., Ltd.

Fertilizer Dept.

Strachan Ave.

Toronto, Canada

21



NEPONSET Paroid Roofing

There's a NEPONSET Roofing for Every Building

GET Neponset Roofings—the "slowly made" kind. Then you are sure to get roofings that are slow to wear out. Then you'll never get a poor roofing when you need a good one.

Neponset Roofings are long on the roof—because long "in the making." This means more than you think. It means this: Maximum protection to your home—your stock—and your pocket-book. Protection against leaks—repairs—and that greatest danger of all—fire. Remarkable "year-in-and-year-out" protection—in cold or hot climates—at a minimum cost—this is the "blanket protection" slowly made Neponset Roofings *invariably* give.

There's a slowly made Neponset Roofing for every purpose. Neponset Paroid is the great roofing for fine farm buildings.

Other Neponset Roofings are—Neponset Shingles for residences; Neponset Proslate, the colored roofing.

Sold by dealers everywhere. Write for name of nearest dealer.

Surely Send for Roof Book—FREE

BIRD & SON (Est. 1795), 962 Heintzman Bldg., Hamilton, Ont.
Montreal St. John, N. B. Winnipeg Vancouver

Also makers of Neponset Wall Board, used in place of laths and plaster, and Neponset Waterproof Building Paper

SOCIETY NOTES

St. Thomas

Dr. Frank E. Bennett, of the St. Thomas Horticultural Society, with his usual enterprise, is organizing a party of enthusiastic horticulturists to visit Rochester on the eve of May 23rd for a couple of days, when the azaleas and rhododendrons are in full bloom. Lilacs will also be out, as well as some late tulips. The Park Superintendent of Rochester reports that this is the best time to see the wonderful sight these flowers present in that city. Parties of ten or more will be able to visit Rochester at the rate of a fare and a third. Several enthusiasts are going from St. Thomas, and it is expected that London will add to the numbers. Any horticulturist who would like to join this party are invited to write direct to Dr. Bennett.

His Royal Highness, The Duke of Connaught, has consented at the request of the St. Thomas Horticultural Society to plant an English oak in one of the parks on the occasion of his visit to St. Thomas on May 6th. The society has purchased a number of rare trees which will shortly be planted in Pinafore Park.

In the annual report of the Ontario Horticultural Association the name of Mrs. Potts, who gave an address relating to the teaching of horticulture to the children in schools is incorrectly given. It should be Mrs. R. B. Potts, 16 Bruce St., Hamilton. The paper by Mrs. Potts was highly praised when read at the convention. Societies or others desiring to get in touch with Mrs. Potts will be able to do so at the address given.

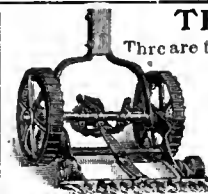
Items of Interest

An international conference on city planning will be held in Toronto, on May 25th to 27th. During the last five years national conferences on city planning have been held annually in various cities of the United States, and have aroused wide-spread interest. This is the first conference of the kind to be held in Canada. The Dominion and Provincial Governments are contributing to the expense of the proceedings. It is expected that many towns and cities in Canada will be officially represented.

"Gardens of Delight," is the title of a most attractive booklet being distributed by Kelway & Son, the Royal Horticulture Establishment, Langport, Somerset, England. It contains profuse illustrations, many of them beautifully colored, of leading English gardens. The illustrations are a revelation.

Chas. E. Woolverton
Landscape Architect
Grimsby, Ontario

THE CLIPPER



There are three things that destroy your lawns—Dandelions, Buck Plants and Crab Grass. In one season the Clipper will drive them all out. Your dealer should have them. If he has not drop us a line and we will send circulars and prices. **CLIPPER LAWN MOWER CO.**
Box 10, Dixon, Ill.

on of the perfection to which the garden-
n art has attained in England.

Mr. J. J. Kelso, superintendent of Ne-
cted and Dependent Children, Toronto,
planning to place from two to three hun-
d boys now in industrial homes to work
fruit farms in the Niagara District
ring the summer months. The money
ned by the boys is to go towards the
oport of poor relatives or to the boys'
n bank accounts.

Prof. Lloyd, of McGill University, gave
address recently before the Royal Cana-
n Institute in Toronto, on "Artificial
ening of Fruit." In the course of his
dress he changed a bunch of bananas
m a green to a ripe condition in less
n an hour, by means of the fumes of a
mical substance. Prof. Lloyd claimed
t the flavor, aroma and quality of the
it were in no way injured, and that one
the greatest benefits to be derived
ough artificially ripening fruit is the
t that it makes it possible to transport
it over long distances.

The death occurred recently of Colonel
n. Windle Pilkington, V.D., D.L. Col.
kington was the head of the well known
glish firm of Pilkington Bros., Limited.
o have been regular advertisers in The
adian Horticulturist for years. This
n is one of the best known firms engag-
in the manufacture of glass in the world.
e home of the late Colonel Pilkington was
Helens, England, where for many years
was one of the leaders in all public en-
prises, and where he held many impor-
t positions.

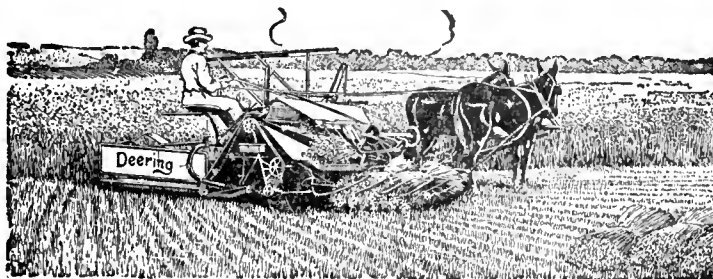
At an open meeting of the Burlington,
t., Fruit Growers' Association, held re-
tly, addresses were given by Prof. R.
rcourt, of Guelph, and Mr. W. T. Ma-
n, Dominion Horticulturist, of the Cen-
l Experiment Farm, Ottawa. Mr.
oun stated that Nova Scotia is produc-
apples at a lower cost than any other
t of Canada. British Columbia cannot
l does not grow better fruit than On-
io, but they pack it better, and adver-
e it much more. A letter from Mr. A. W.
art, of Burlington, was read dealing with
history of the Association and the great
or it had been in the promotion of hor-
culture in the district.

An effort made by the United Fruit Com-
nies of Nova Scotia, Limited, to estab-
n, a Madison Cooper Plant, for cold stor-
e and pre-cooling purposes this year, had
be abandoned owing to the work having
en started too late to make it possible
the company to secure the necessary
ply of ice. A cheap method, which it is
derstood has been successfully operated
various parts of the United States for
cooling, will be tried with the ice on
ad.

At a meeting of the members of the
uit Union of Summerland, B.C., held re-
tly, a resolution was passed giving
areholders the privilege of shipping pri-
ely to consumers any variety of their
uit or produce providing the quantity
es not exceed ten per cent. Growers who
ip over ten per cent. will not have the
ht to expect the Union to handle the
lance of their crop of that variety. In ad-
ion the directors will make whatever
arge per box may be necessary towards
eting the cost of overhead expenses.

Reports from various sections of the Niag-
a district indicate that the peach crop
s year, on account of the mild Decem-
r, followed by the unusually cold spell
ring January and February, will be de-
ledly small.

Deering New Ideal A Money Saving Binder



THESE Deering binder features appeal
to the farmer. The elevator, open at
the rear, delivers the grain properly to the bind-
ing attachment. Because the elevator projects
ahead of the knife it delivers grain to the binder deck
straight. A third packer reaches up close to the top of the
elevator and delivers the grain to the other two packers. A
third discharge arm keeps the bound sheaves free from un-
bound grain.

The T-shaped cutter bar is almost level with the bottom
of the platform and allows the machine to be tilted close to
the ground to pick up down and tangled grain without
pushing trash in front of the knife. Either smooth section
or serrated knives can be used. The Deering knotter
surely needs no recommendation.

The Deering local agent will show why Deering New
Ideal binders are the standard of binder construction. See
him, or, write to the nearest branch house for a catalogue.

International Harvester Company of Canada, Ltd

Hamilton, Ont.
Ottawa, Ont.

London, Ont.
Quebec, P. Q.

Montreal, Que.
St. John, N. B.

These machines are built at Hamilton, Ont.

BEEKEEPERS

The honey season will soon be here. Have you any Bees, Queens, or
Bee Supplies for sale? Now is the time to sell them. A small advertise-
ment in the next issue of

THE BEEKEEPER

will bring you ready buyers. Here's what one of our advertisers says:

Dear Sirs

In reply to your letter of the 15th April, we have to
request you to take out our advertisement. We have
received a large number of replies. It is unnecessary to
add that we are very satisfied with The Beekeeper as an
advertising medium.

Yours truly

HARTWICK & WHITE

RATES:—1 inch, \$1.40; 2 inch, \$2.80; 3 inch, \$4.20 per issue
Classified, 3c. per word, each sign or single number
counting as one word.

Copy should be received by the 15th May

THE BEEKEEPER, PETERBORO, ONT.

SPRAYERS Are a Necessity and a Benefit.

They save your crop, increase the yield and improve the quality. Our Spray Calendar shows when to spray and what materials to use. Our "Spray" booklet shows 70 combinations of

IRON AGE

Bucket, Barrel, Power and Traction Sprayers for orchard and field crops and other uses. Built complete or in units—buy just what you need. Ask your dealer to show them and let us send you our spray booklet, spray calendar and "Iron Age Farm and Garden News" free.

The Bateman-Wilkinson Co., Limited
161 Symington Ave.
Toronto, Can.



FOR SALE AND WANTED

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 30 cents, strictly cash in advance.

ALL KINDS OF FARMS—Fruit farms a specialty. —W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS—Before buying it will pay you to consult me. I make a specialty of fruit and grain farms.—Melvin Gayman & Co., St. Catharines.

ASK DAWSON. He knows.
IF YOU WANT to sell a farm consult me.
IF YOU WANT to buy a farm consult me.
I HAVE some of the best Fruit, Stock, Grain and Dairy Farms on my list at right prices.
H. W. Dawson, Ninety Colborne St., Toronto.

SALMON ARM. Shusway Lake, B.C., has the finest fruit and dairy land in B.C. No irrigation necessary: mild winters, moderate summers, no blizzards or high winds; delightful climate; enormous yields of fruit, vegetables and hay; good fishing; fine boating amidst the most beautiful scenery, and the Salmon Arm fruit has realized 25 cents per box more than other fruit in B.C. Prices of land moderate, and terms to suit. Apply to F. C. Haydock, Salmon Arm, B.C.

I BUY BEES STANDING. Myself pack and load. Owner pockets cash.—F. A. Allen, Phillipsburg East, Que.

BEZZO'S FAMOUS PRIZE ASTERS—Read particulars on page x.

WANTED FOR THE SEASON—Young Man who has had experience to work as assistant in Queen rearing yard. State experience and wages expected.—John A. McKinnon, Queen Breeder, St. Eugene, Ont.

BUY THE CIRCLET, a new, up-to-date, hand engraved Aluminum leg band for fowl. Fits all sizes, simple, neat and durable. Send 25c for one dozen.—Wm. A. Curry, 28 Water St. E., Brookville, Ont.

WANTED—Prime swarms; hives furnished. Address Box 18, The Canadian Horticulturist and Beekeeper, Peterboro, Ont.

GOLDEN AND THREE-BANDED ITALIAN AND Carniolan Queens, ready to ship after April 1st. Tested, \$1.00; 3 to 6, 95c each; 6 to 12 or more, 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c. Bees, per lb., \$1.50. Nuclei, per frame, \$1.50.—C. B. Bankston, Buffalo, Leon Co., Texas, U.S.A.

FAMOUS NORTH CAROLINA BRED ITALIAN Queens for sale (red clover 3-banders). Honey-gatherers, good as the best. Strictly reared from Geo. B. Howe's best breeders; mated with Root's, Moore's, Davis' Select Drones; bees that get the honey. Free from disease. Untested, one, 75c; per doz., \$7.50. Select untested, one, \$1.00; per doz., \$9.00. Tested, one, \$1.25. Select tested, \$1.50. Extra select tested, \$2.00. Breeders, \$3.00 and \$5.00.—H. B. Murray, Liberty, N.C., U.S.A.

FOR SALE—A bargain, one, two and half horse power Sprayer. Two seasons in use. Good state of repair. Complete, sixty dollars.—Lawrence Harvey, Wardsville, Ont.

WANT TO SELL YARD OF BEES or some one to run them near Toronto.—J. Alpaugh, Innerkip, Ont.

Top Working Fruit Trees

R. M. Wiuslow, Provincial Horticulturist, Victoria, B.C.

The fruit growers of the Okanagan Valley have shown a great increase of interest in making remunerative unsuitable varieties of trees by working them over to the best commercial kinds. Inquiries and requests to the Horticultural Branch of the Department of Agriculture have been far more numerous than in any previous year.

While top-working fruit trees, especially apples, is often justified by the increased returns after the new top is well established, there are certain conditions under which it is not advisable. I refer particularly to the top-working of black-hearted trees, or those which have been badly affected by fire blight. The wood of a black-heart tree is brittle, and much of it is dead; decay starts very readily in the cuts made for grafting, and the scions either fail to grow, or if they grow, make a poor union, and eventually break off.

The appearance of a tree severely cut back in the effort to control an attack of blight, naturally suggests top-working to a blight resistant kind. If blight were quiescent or absent from the district, top-working might be feasible, but when blight is active, the inevitable crop of water sprouts furnish the best possible conditions for blight, and effort to save the blighted stock on which to build a new tree is likely to meet entirely with failure.

Aside from blight or black hearted trees there is a large number of sound, healthy and vigorous trees, of non-remunerative or non-productive varieties; these may be grafted over to the better commercial kinds; in fact, it is highly desirable that they should be so treated.

Items of Interest

Sunscauld is found almost entirely in trees having an open habit of growth or where they are headed very high and pruned out severely in the centre.—S. E. Todd, Lake Huron District, Ont.

The use of iced cars for the carriage of fruit is increasing year by year and fruit growers are learning that the question of temperature in transit is of as much importance as the length of time occupied in carrying the fruit from one place to another.—J. A. Ruddick, Dairy Cold Storage Commissioner.

The cooperative purchasing of supplies has built up in our vegetable growers' association a spirit of brotherly love and mutual confidence that has been of untold benefit to us. Our members have increased, our finances have grown (until one year we paid out over one hundred and fifty dollars in prize money), and still had a nice surplus at the end of the year.—W. J. Kerr, Ottawa, Ont.

Since the creation of The United Fruit Companies of Nova Scotia, Limited, the fruit industry of Nova Scotia appears to have taken a new lease of life. The company has established a department in The Register, of Berwick, N.S., which is published weekly, and which keeps the fruit growers of the Annapolis Valley fully posted in regard to important matters relating to the fruit industry. This is creating greater confidence among the growers and assisting in bringing about reforms and improvements more rapidly than would otherwise be possible.

Mated pairs of Silver, black and patched foxes for sale.

Also options on 1914 puppies for summer delivery.

JOHN DOWNHAM, Box N, Strathroy, O.



THE STRATFORD EXTENSION LADDER

It is the safest and best on the market. Fitted with automatic hooks that lock at every rung and unlock between the rungs.

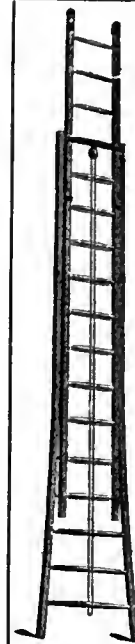
It is
LIGHT, STRONG, EASILY OPERATED AND DURABLE

IF Interested write for Catalogue

THE
Stratford Mfg. Co.
Limited

STRATFORD, CANADA

Makers of Ladders for every conceivable purpose



If you buy a cheaper Arsenate of Lead "to save money" don't buy any at all and you will save all the money.



TRADE MARK

Neutral Arsenate of Lead

is not made to sell at a low price, but is produced by a process, that gives it qualities which makes it more economical and efficient than the Arsenates selling for less money.

THE
CANADA PAINT CO.
LIMITED

PAINT-VARNISH AND DRY COLOR
MAKERS-LINSEED OIL CRUSHERS
MONTREAL-TORONTO-WINNIPEG-CALGARY-HALIFAX
OXIDE MINES-RED MILL QUEBEC

The Canadian Horticulturist

Vol. XXXVII

JUNE, 1914

No. 6

Reducing the Cost of Production*

Prof. H. A. Surface, Harrisburg, Pa.

GOOD fruit land is generally cheaper than rich or more level farm land that may be less desirable for fruit production. Proper fruit soil produces trees of good size, and fruits of best quality and in large quantity; thus reducing the relative cost of production. Proximity to market or shipping station, to reduce the cost of hauling, is an essential factor.

Where there is good air drainage or local elevation, spring frosts do not so often injure blossoms or tender buds or fruits, and thus there are more frequent and larger crops, resulting in relative cost reduction.

Well drained soil means healthy, vigorous trees. Wet soil means poor trees, and worst of all, apple tree diseases, such as root rot, collar blight, and others. Instead of a good income from a fine crop on healthy trees money must go to replace dead ones, or there will be very serious loss that comes from leaving vacant places in the orchard. Wet orchards should be well drained; but the economy of dynamiting is yet to be proven in general, for we know where it has been very unsatisfactory.

Good varieties are quoted constantly in price above poor kinds. Compare today's quotations on Stayman Winesap, Rome Beauty or Baldwin, with those of Ben Davis, Smith Cider or Shockley.

Adapted varieties give finer fruits and larger yields than those not adapted to the region, and of course as these sell more easily and for higher prices, they help to reduce the relative cost. A very important economic consideration is that it pays all commercial growers of a community to put their efforts into growing perfectly only those varieties (often but one or two) that are decidedly best there.

Healthy young trees from reliable nurserymen mean ready vigorous growth without stunting by transplanting; and large early crops, if properly handled. Trees not true to variety ordered may mean years of loss.

Plant at sufficient distance, and on the square system. The writer now plants all permanent apple trees forty feet apart and all others at twenty. This permits profits from inter-cropping, cultivating

each direction, and the development of large trees with full crops.

Low-headed tops cheapen the cost of production by reducing the work of pruning, spraying, thinning and picking; and prevent heavy loss by wind falls, as well as mulch their own soil.

Reduce the necessity for expensive commercial fertilizers by growing legume cover crops. The writer uses chiefly crimson clover with buckwheat and harvest the latter. One orchard gave eighty-four bushels of buckwheat this year. In another the crimson clover was sown with cow horn turnips, and we now have a good stand of the former, with over one hundred dollars worth of excellent turnips, without detriment to the young trees.

Nitrogen, the expensive element in commercial fertilizers, is not needed where the legumes are grown in an orchard. We need buy only muriate of potash and acid phosphate, and need but little of these where orchards are comparatively young and occasionally cultivated.

Pruning can be done at any time of the year, if not too severe; and necessary severe pruning can be done at any time during the dormant season. Thus it is a "filler" job that can be done with economy when more important work is not pressing.

For cover crops we grow our own seed between the cultivated tree rows in the young orchards, and in any orchard that will not produce fruit that year.

A uniform head of symmetrical trees helps to maintain the income by insuring fruit where otherwise there would be vacant spaces.

Plant varieties to ripen in succession, and thus keep the pickers engaged.

We make all our own spray materials, saving time and expense by preparing stock solutions during bad weather.

We spray as many times as are necessary, but no more. This is four (or at most, five) times in the year for pomes, and three times for drupes.

Owing to our low-headed trees the thinning is done easily and quickly, mostly from the ground, and chiefly by



A Revenue Producing Orchard in the Georgian Bay District

*Ex tract from an address delivered before the members of the Niagara Peninsula Fruit Growers' Association.

This orchard, owned by Wm. Reekie, Camperdown, Ont., has been sprayed, pruned and fertilized. It consists principally of Gravenstein, Snow, Spy, Baldwin and Spitz varieties. At the time the photograph was taken Mr. Reekie expected it to produce two hundred barrels an acre.



A Productive Strawberry Plantation in British Columbia

This four-acre strawberry plantation, owned by O. J. Wigen, Wyndel, B.C., produced 53,000 quarts of strawberries. Mr. Wigen grows Kellogg thoroughbred plants. (Photo copyrighted by The R. M. Kellogg Co.)

women and girls, thus greatly reducing the cost.

There is much less financial loss from fallen fruits from trees with very low spreading tops, because less droppings and less bruising.

Low trees permit economy in time and methods of picking.

Cooperative or wholesale buying of supplies and selling produce helps much in reducing the cost.

Our friends may expect us to recommend the elimination of spraying for the scale by the introduction of scale parasites (of which much recently has been printed) but we can not yet be sure that in all orchards they will do their work as thoroughly as they have in our own and in hundreds of others we have carefully inspected in Pennsylvania. It is surely worthy of careful consideration. We have discovered and published regarding certain entomological conditions, and have been criticised by a few who have been too narrow to understand or believe them, and of course by certain agents of scale-spraying materials. We have seen enough to give firm faith in the adequate reduction of the San Jose Scale by minute internal hymenopterous parasites. If any unprejudiced person will come to Harrisburg, Penn., and go with me to see a score or more of orchards that have been cleaned of San Jose Scale by the parasites, and then not agree that these natural agencies have been efficient in suppressing the scale I am willing to pay

the expenses of the trip. Hence, our recommendation to "Reduce the cost of production by the application of modern methods."

How Often and When to Spray*

Prof. L. Caesar, Provincial Entomologist, Guelph, Ont.

IT is difficult for one who has not lived in Nova Scotia to advise Nova Scotia growers how often and when to spray. We shall, I believe, all agree on at least two of the applications, namely one just before the blossoms burst, beginning with the earliest varieties, and then going right on with the later, and the other just after the blossoms have nearly all fallen, say eighty to ninety per cent. of them off. Without these two in a wet cold May or June no one need hope to control apple scab. One of these is almost as important as the other.

There will be a difference of opinion as to the other sprayings necessary. I think you should carefully test the value of one earlier application. Try it on at least one-third of the orchard and continue it for at least four or five years, as one year's results are often quite inconclusive. When this application should be put on is a debatable question. If you have oyster shell scale, blister mite or much canker to combat it should be before the buds burst or just as they are ready to burst. If these things are not troublesome I should feel like suggest-

ing that the spraying be done not before but as the buds are bursting, or just after they burst, so that the unfolding leaves may be covered with the spray mixture and protected against scab until the application just before the blossoms open can be given.

As for any later sprays one must be guided by the weather. I think it probable that it will pay to spray again about ten days after the codling moth spray. It seems to me that better results will be got by not waiting for two weeks as ordinarily recommended, because each week after the blossoms fall the danger of apple scab begins to grow rapidly less and the all important thing is to get the apples safely through June because there is seldom danger in July.

All are aware that two years ago the injury by apple scab was done chiefly in the latter part of August and September. This injury could have been largely prevented by an application of spray mixture the last week in August, supplemented perhaps by another about two weeks later.

The Production of Gooseberries*

L. B. Henry, B.S.A., Winora, Ont.

ONE difficulty in growing gooseberries is to bring them to maturity without having them become slightly scalded. A few hours exposure to a very hot sun will scald them very badly causing the skin to become tough and destroying the flavor of the berry. I remember three years ago we lost quite a quantity of fruit which was exposed in this way. We have one patch of three thousand bushes planted out in the open and that particular year we had them just a little over half picked by a Saturday night. Sunday was a roaring hot day and as a result we had stewed gooseberries by Monday. You could notice the cooked odor quite a distance.

At the same time another patch of nearly one thousand bushes, just across a lane but planted under peach trees remained practically uninjured on account of the shade afforded by the trees. Gooseberries seem to require shade for their best growth. Even in England the best and largest berries require shade for their best growth.

They can be grown in an orchard with very little extra work as they can be cultivated lengthwise when the orchard is worked and a one-horse cultivator can be used crosswise. Two bushes can be planted between the trees in the row. Spraying can be done easily and the picking of them is more of a pleasure than being picked and pricked to small bits in the sun. Our Whitesmith patch under

*Extract from an address delivered before the Nova Scotia Fruit Growers' Association.

*Extract from an address delivered at the last annual convention of the Ontario Fruit Growers' Association.

the trees averaged six quarts to the bush, while the other one which is in the sun averaged three quarts.

English varieties are not propagated to any extent in this country, the main part of them being imported, as nurserymen find that they can do this cheaper. American varieties are usually grown by mound laying, which consists in throwing up the earth in June when the young shoots are a few inches long. They root in this and are left on the stools for a year when they are planted out in the nursery rows for another year. English varieties may be propagated in this way, but they are usually left on the stools for two years.

Cuttings six or eight inches long, taken in August or September, and stored as currant cuttings will succeed with American varieties and with English sorts in England but stronger plants are produced by the layering methods.

Gooseberries require the same cultivation as the currant. It is important that it should be shallow and frequent. Some people use a mulch system claiming that they can obtain good results and also prevent mildew to a large extent. Plantations thus treated have borne large crops for twenty years. The mulch which is usually straw should be at least six inches deep and may be thrown on

the bushes in the winter and placed in the spaces in the early spring. It conserves moisture, prevents weeds and keeps the fruit clean. Its chief advantage is the prevention of mildew but its use has largely disappeared on account of improved methods in spraying.

PRUNING

Gooseberries bear on two-year-old wood and canes should not be allowed to remain after they are five years old. The young bushes do not require much pruning for the first three years except to cut back about half the new growth each year. This encourages the development of fruit spurs all along the branch instead of having them situated mostly at the ends. Low branches and those which have been injured should be removed as well as superfluous new wood.

When pruning we have to keep in mind that the bearing canes or branches will not last forever, so young shoots should be saved to take their places. For English varieties leave five or six bearing branches and as many more young shoots. More branches may be left in an American variety on account of their smaller size.

The idea of thinning out the bush to admit sunlight is altogether wrong, as the crop may be severely injured by the hot rays of the sun.

required, no farm house or even village home with a small garden should be without an abundance of the most wholesome, delightful and fragrant of foods—the delicious strawberry and raspberry. They are far better than medicine, for with ripe fruit in the home sickness often becomes a stranger. The little toil required in setting out, caring for, and picking is repaid a hundred fold in health and happiness.

It is better to have the soil for strawberries rich with some good fertilizer, as barnyard manure. On poor soil the same amount of work is required, with only a quarter the crop.

If the ground has been cleaned by a summer fallow or some hoed crop, such as potatoes, it will save a good deal of labor. Weeds grow fast in strawberries. The ground must be well drained. Berry plants "cannot stand wet feet." A place well sheltered so that snow is likely to remain long on the ground is favorable.

For ordinary cultivation the plants are set out in rows four feet apart and eighteen inches apart in the row. Some place the rows as closely as three feet, and if they are kept narrow enough by trimming the ends of the runners the plan is good. But it is never wise to have the rows too wide or matted, as besides giving weak plants it interferes with the picking.

For a small patch dig small holes with a hoe, make a small cone shaped mound in the centre of each, and over this place the plants, letting the roots hang around the cone, but deep. Then cover and pack tightly. This enables the moisture to rise by capillary action. Lastly cover with a loose layer of earth. This keeps the moisture from escaping.

Avoid planting too deep, or too shallow. Large patches may be set out by using a spade, trowel or better a dibble. An opening is made, the plant inserted the proper depth, the roots shaken well out, and then the earth is pressed tightly against it with the hand or foot.

In the spring after the leaves are nicely started I go through and trim off the ends of the branches, cutting off a third or a quarter of the length, and removing dead wood. The remainder will do much better if this is done.

Directions given for the strawberry are also applicable for the raspberry. Land sloping gently to the north is favorable to the raspberry as the changes of temperature are not so sudden. This location also more nearly approaches the state of the wild strawberry. What is termed "winter-killing" is more properly spring killing.

Plants are generally set in rows six feet apart and three feet apart in the row. If the soil is good a row of carrots or other vegetable may be grown in the intervening spaces the first year.

The Culture of Raspberries and Strawberries

Jos. Frappe, Stirling, Ont.

TO make a success of growing small fruits one should not do things simply because others do. There should be a good clear reason back of everything. The more thought and intelligent workmanship one puts into any work the more pleasant and agreeable it

becomes; and this is abundantly proved in the culture of berries. There is a pleasure in the great windrows of luscious fruits, the work is light and agreeable, and the profits to the painstaking are often large.

For the little care and work that are



A Well Sprayed Apple Orchard

In this orchard, owned by W. J. Owens, Duntroon, Ont., fifteen pounds of lime to the barrel was used. This gave the trees their white appearance and assisted in the making of a thorough job.



Prospects for a Bumper Apple Crop in an Essex County, Ont. Orchard

Many varieties of raspberries will do well in one locality, and produce small stunted plants and crumy berries when grown not more than a mile away. As an instance of these I might name the London, though there are many others with this fault that are sold at high prices.

Factors in Fruit Growing

Prof. H. A. Surface

Avoid injury from insects by knowing those that are most liable to appear, and watching for them or their work. For their suppression, follow the teachings of the most modern entomologists. In all cases, for economy of production, practice the methods of prevention rather than of remedy. Spray for insects once when dormant, with strong lime-sulphur; for the apple aphid make this application immediately after leaf buds burst; also use an arsenate with the fungicide for each of the subsequent sprayings.

THINNING PRACTICE

Modern horticulture so emphatically demands that the operation of thinning be practiced that especial attention must be directed to this process as a means of (a) increasing the size of fruit, (b) obtaining uniformity of size, (c) eliminating defective fruits, (d) equalizing the distribution of the load, and in consequence opening the top uniformly without breaking the branches, (e) giving uniformity of color, and (f) above all else, preventing exhaustive production this year, thus making it possible to set fruit buds for next year's crop, resulting in annual rather than biennial crops.

Fallen or bruised fruits are prevented by growing them on very low headed trees, which properly brace themselves with their branches; also by picking before they are dead ripe. Injury from

falling is avoided by a good mulch under the trees.

The bruising of fruit by harvesting must be avoided by careful handling from start to finish. Any person who cannot handle fancy fruit more carefully than eggs should grow only Ben Davis apples and Kieffer pears. The grain bag over the shoulder is still too often used for picking. Pick in baskets or picking buckets. Do not press, bruise, or rub fruits. Handle just as little as possible,

and keep the "bloom" on apples and plums particularly, as this is one of the elements in the quality we wish to produce.

Finally, to obtain the highest degree in quality let the fruit mature on the trees. Fruits picked green do not develop with their best flavor or color. This is why, in every region, fancy "home-grown fruits" are preferred by consumers to those grown elsewhere and picked unripe to stand shipping.

Thinning the Apple Orchard*

J. M. Robinson, Kentville, N.S.

THINNING should always go hand in hand with spraying. The following table shows results obtained from twenty of the most careful sprayers in ten companies of the United Fruit Companies of Nova Scotia, giving the per cent. of number threes obtained. The percentage of poor fruit could have been greatly reduced by thinning, as can be seen by the figures taken from thinned apples from very large trees at Kingsport. This is not necessarily a correct comparison but is given to show that the per cent. of number threes can be cut down by thinning:

	1912 %	1913 %
	No. 3	No. 3
Gravenstein, 20 best sprayers	36	35
Blenheim, 20 best sprayers	15	28
King, 20 best sprayers	22	36
Ribston, 20 best sprayers	25	32
Gravenstein, thinned (1913)		19
Blenheim, thinned (1913)		12
Ribston, thinned (1913)		16

These figures show that even though thorough spraying is done we often have fifteen per cent. or more of scabby and defective fruit on the trees. Often too a great many varieties set so full that it is impossible to get a high percentage of number one fruit and consequently the percentage of number threes is high, which generally gives poor markets. In each of these cases it will pay the grower well to thin.

In paying visits to a number of orchards last season I was very much impressed by this fact. Blenheim and Ribston bore heavily generally and though free from scab would not give good satisfaction in packing on account of the great number of small and poorly colored specimens. If from twenty to thirty per cent. of these apples had been removed a surprising difference would have resulted in the grade obtained.

Again, the percentage of number three and cull grade is often nearly proportional to the percentage of scabby and defective fruit on the trees, and by thin-

*Extract from an address delivered before the members of the Nova Scotia Fruit Growers' Association.

ning off sometimes fifteen to twenty per cent of this part of our crop the grade will be raised greatly and the yield not materially decreased. The expense of thinning moreover is not great and the work is easily done. In Kingsport last season large trees bearing eight to ten barrels, were thinned in three quarters to one hour each, or at a cost of approximately two cents a barrel, calculating labor at twenty cents an hour. The extra expense in grading unthinned fruit easily offsets this and the gain in grade is from thirty-five cents to fifty cents a barrel tree run.

I consider thinning of great importance as it aids greatly in appearance, which is our weakest feature in fruit growing in the Annapolis Valley. Greater profits for money expended may also be had from thinning than from any other orchard operation.

What they Cost.—It often happens that when we continually hear of the ravages of certain insect pests, that we suddenly realize the enormous amount of damage they are doing, and immediately adopt measures to render their attack less and less in the future. When we hear in cold figures what the annual loss in orchards amounts to every year, it makes us "sit up and think." In the year 1904, Mr. C. L. Marlatt, of the U. S. Bureau of Entomology, went very carefully into the question of what our insects cost us, and he estimated that the annual loss due to fruit insect pests amounted to the enormous sum of \$27,000,000. That is, twenty per cent. of all fruit crops grown in the Republic to the south of us is annually destroyed by injurious insects. Some years the percentage in some districts will be as high as forty per cent.—Arthur Gibson, Chief Asst. Entomologist, C.E.F., Ottawa.

Basic slag, which is a cheap form in which to apply phosphoric acid, can be used to advantage in large quantities by crops which are gross feeders. If the soil is rich in vegetable matter or acid, the acids will help to dissolve the insoluble forms of phosphoric acid and make them available for the plant.



Cottesmore Hall, Cobourg, Ont., One of an Increasing Number of Suburban Mansions in Canada—Fig. 1

The Gardens of Cottesmore Hall, Cobourg, Ont.

T. S. Hall-Abell, B. Sc., Cobourg

NOT very far from the gardens of Bagnall Hall, Cobourg, a description of which appeared in the January number of *The Canadian Horticulturist*, lies the beautiful residence and gardens of Mr. Wallace H. Rowe, the president of the Pittsburg Steel Company. All that the ingenuity of man could accomplish has been done to make this residence a palace, the grounds fairy-haunted glens, and the gardens veritable wonderlands. Bounded on the south by the old Kingston Road; on the west by Cottesmore Avenue and on the east by a meandering creek which flows from the Baltimore hills out into Lake Ontario, the whole vista is so pleasant that one has to be quite strong-willed to drag oneself away.

The Hall itself is built most substantially of cut Kingston stone, the frontage being one hundred and sixty-two feet. In figure one a good view of it is obtained. The bush hydrangea in the right foreground, the weeping ash and maples also show well in this cut, which gives the south west aspect. The front entrance from Kingston Road has massive hammered iron gates with heavy lamps, flanked by maples. It opens invitingly into an avenue of more maples that are in excellent keeping with the rest of the estate. These gates were made by the Canada Foundry Company, weigh quite a few tons, and cost several thousand dollars. Part of the finer work on them required two or three years to accomplish.

Most of the trees shown in the illustrations have been in the hands of the

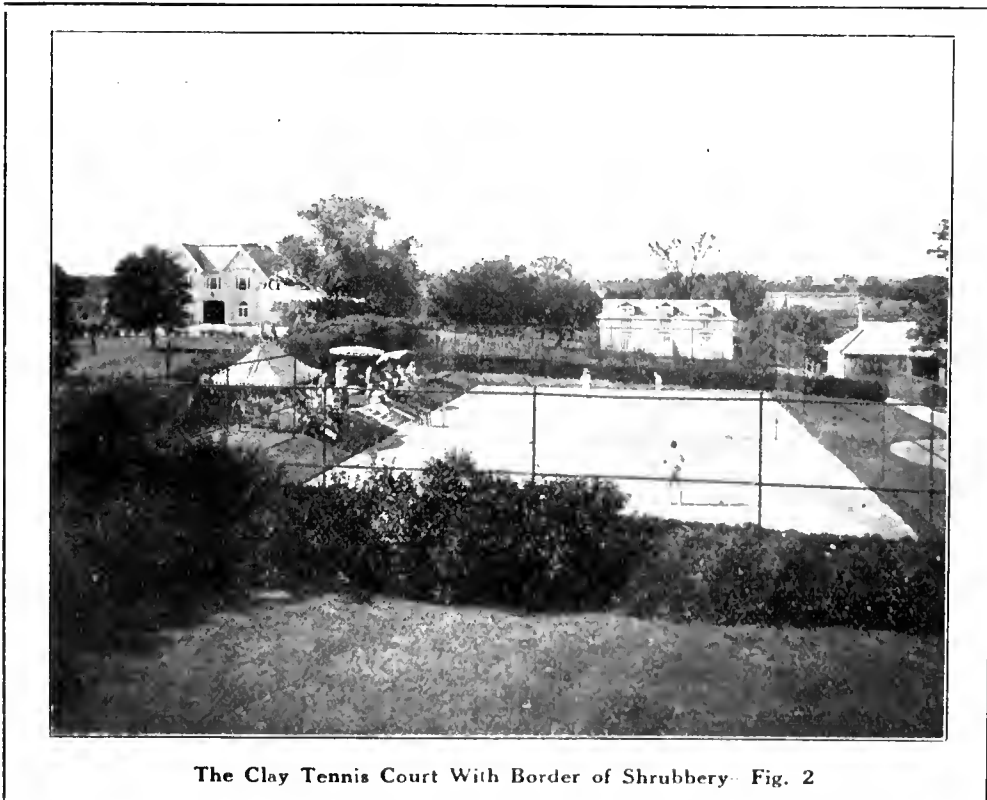
dentist. All rottenness has been removed, and all holes filled. They look good enough to stand for centuries.

The driveway is made on the Telford Road system. The other paths are macadam on ten inches of crushed stone.

Figure two is the clay tennis court—originally the upper half of the vegetable garden—enclosed by a cedar hedge, and surrounded again by lilacs, high bush cranberries and bush honeysuckles. In

the background of this illustration and to the left are the stables, to the centre the poultry house and to the right the tool house, while two beautiful English white hawthorns also show up well to the right of the willows. This photograph was taken from the nursery window in the rear of the house, and the view is due north.

In figure three we see part of the formal garden laid out in double Maltese



The Clay Tennis Court With Border of Shrubbery—Fig. 2

Summer Care of Roses

By an Amateur

Frequent cultivation will keep rose plants thrifty and strong and will counteract the ravages of insects materially. After the leaves are well out an application of arsenate of lead, two ounces to a pail of water, applied with a sprayer so that every leaf is covered, will kill all chewing insects. The arsenate of lead leaves a white sediment on the leaves, but this will be all washed off by the rains and by the necessary sprayings with pure water before the roses open.

Weak solutions of ordinary soap dissolved in warm water and applied with a sprayer to the under side of the leaves will hold the thrip in check, while spraying with the garden hose in the evenings will get rid of the aphids, which infects the young and tender growths. Mildew will not likely trouble plants in good locations, but if it should appear, it is best held in check by dusting the plants with flowers of sulphur or soot while the plants are wet with dew, and allowing it to remain for a day or two and then washing it off with water from the hose. If it appears in the autumn, when cool nights follow warm days, it will not do any considerable harm.

While the first cost of many varieties of paeonies may seem high, it is really the most economical plant one can buy, from the fact that it represents a permanent investment and one which pays annual dividends of increase of at least one hundred per cent.—J. H. Bennett, Barrie, Ont.



The Formal Garden Showing Part of the Perennial Border—Fig. 3

Cross formation. Perennial borders circumscribe all the beds, and the rose here reigns supreme. One is not exaggerating when one says there are thousands upon thousands of rose bushes here. McGredy of Porterdown, Ireland, supplied the majority of these, and they consist of the choicest the earth produces. One bed alone contains the following: In the centre, King George V., and around are Mrs. Maynard Sinton, Mrs. Muir MacKenna, General Jacqueminot, Madame Abel Chatenay and Etoile de France. Others are Mrs. Wallace H. Rowe, Kaiserin Augusta Victoria, John Laing, Liberty and Frau Karl Druschki, the last the best white rose in cultivation.

The two large chestnuts on the left of this cut and the apple tree to the right, stand on the spot where one of the three brick houses originally stood. These houses, of course, were demolished at the time the plans were approved of. In figure four is pictured an artificial pond formed by damming the creek; and the German irises in the foreground with the dogwood, *Cornus Siberica*, altogether make this spot a charming retreat on a summer day. The maples on the east side of the entrance drive can also be seen well in this cut.

Mr. Rowe bought the land in 1904, and in 1908 was in residence. The landscape architect, Mr. F. G. Todd, of Montreal, the man who laid out Sir William McKenzie's palace, spared no pains, brains or money, and from motley cut-up farms covered partly with old brick houses, has been evolved a most splendid residence and grounds, a pleasure to

its owner, a valuable asset to the town of Cobourg, and a beauty spot for Canada. Mr. Buckler, the gardener, and his staff of assistant gardeners are to be congratulated on the very smart and correct appearance of the whole at all seasons.

When transplanting many varieties of rooted plants the iron trowel is very useful.—H. M. Speechly, Pilot Mound, Man.



The Artificial Pond, A Charming Retreat in the Garden—Fig. 4

Lawn and Garden Hints for June

PLANTS for bedding may be placed in the open early this month. In color schemes, harmony should be the first consideration. Do not attempt too much.

Be sure to have plenty of mignonette in the annual flower beds. It is a useful flower for cutting. Other common annuals worth growing in every garden are marigold, petunias, zinnias, poppies, portulaca, calliopsis, and balsam.

Keep the perennial border well cultivated and clean. Pick off all flowers when they commence to die.

Plant some gladiolus bulbs, and plant some more two weeks later for a succession of bloom.

Get the window boxes ready and put them in position as soon as danger of frost is past. The time has come to look after your hanging baskets.

You can increase the size of your pansy flowers by watering two or three times a week with water in which cow manure has been soaked. They will take lots of it.

Hollyhocks are well worth growing, but do not plant them singly. They make a better effect when grouped.

Keep ahead of the insects on rose bushes. If you have not already done so, give the leaves a good sprinkling of hebebores.

Sprinkling plants and bushes once a day with water alone will keep down many pests.

Dahlias planted now usually will give better results than if planted earlier.

For best results in the flower garden, four essentials in June are thinning, weeding, cultivating and watering.

Sweet peas should be watered often. Never let the ground get thoroughly dry, and do not keep it too wet.

Old geranium plants that have become tall and unsightly can be cut back to within a few inches of the old hard wood. Keep them in soil that is moist but not wet. When growth starts re-pot into a pot one or two sizes smaller, using soil composed of two parts of loamy potting soil and one part of fine sharp sand. Water well and let them grow.

Do not allow weeds to get a start in a newly-made lawn. Keep the turf thick and velvety, and the weeds will be in the minority.

Keep the mower going. The body of the sward can be increased by frequent mowing. It is better to mow often rather than too closely.

To have large flowers of sweet peas, disbud and allow only a few of the buds to grow to maturity.

Keep the walks and drives clean.

Keep the soil about the shrubs spaded and suckers cut down.

Portulaca, candytuft, sweet alyssum, and phlox may still be planted.

Canna beds of one color are more effective on a lawn than mixed colors.

It is safe to set out any of the annuals or vegetable plants after June first.

Keep the blossoms picked off the pansies and sweet peas if you want flowers throughout the season.

Cultivate the vegetables, fruits, and flowers thoroughly if you would be successful.

A good time to trim the spiraea Van Houttei and other spring flowering shrubs is just after they are through flowering.

Watch the roses for insects and either keep them picked off or spray with insecticides. Soapsuds makes a good spray to get rid of the aphids. Use a clean soap that is free from chemicals.

vegetables for winter use at small expense.

Tulips may now be dug to make room for other plants. Take up tops and all and store in some cool, shady place until the foliage dries, then they may be cleaned and put in a cool place in the sacks till October, when they may be replanted.

Spiraeas and other plants blooming early in the spring may now have some of the wood that bore flowers taken out, making room for the new growth which will produce the flowers next year. Careful attention to these things means better plants next year.

VEGETABLE GARDEN

Set out late cabbage and celery.

Continued cultivation means success in the garden.

Early peas should be in evidence now.



Spring's Ever Welcome Feast of Beauty: Garden of C. O. Stillman, Sarnia, Ont.

Transplanting is almost entirely done in May and June—as soon as the seedlings can be handled with the thumb and finger. A good tool to use is a sharp pointed stick about the size of a pencil. The plant can be loosened with this without disturbing those that are to be left in the row. It is also a good tool for making the hole for the plant. For larger plants, as those transplanted from hotbeds or cold frames a trowel or large dibber will be useful. Keep all the soil possible about the roots, and firm the soil around the ones left in the row as well as those reset.

Do not let the roots dry out, and shade the reset plants for three or four days if the sun is bright.

Keep the dahlia plants pruned and tied to stakes for best results. Too many stems produce poor and inferior flowers.

Have you looked up any of the canning outfits? They save the fruit and

Better plant a few rows more for later use.

Dwarf horticultural or cranberry beans make excellent shell beans. It is not too late to plant them now.

Cucumbers may be sown now with good results.

Have you made several plantings of peas and corn?

Swiss Chard takes the place of other leaf crops for "greens" in hot weather, and kale makes good "greens" late in the fall. Plant them now.

Remove all blossoms from newly set strawberry plants. They take too much strength from the plant and thus do not allow it to make the best growth of vine.

Don't plant small fruits or bushes between the tree in the orchard. They soon become a nuisance. Potatoes or beans may often be planted to advan-



Tulip Beds, Queen's Park, Toronto, Ont.

tage. Corn should not be used, as it shades too much.

Because of limited space the rows of vegetables in a home garden are usually close together, and often the seed is planted thickly in order to have a large yield. This is a mistaken idea, as the plants cannot develop to their full size if crowded. Vegetables grown for their roots should be given as much space as a mature plant needs. The very early radishes which are ready for the table in three or four weeks can be thinned out as used, but the larger varieties should be allowed two or more inches of space. Beets can be thinned out and used for greens, giving those left to mature, about three inches of space.

Plants grown for their foliage, as lettuce, parsley, and spinach need more room than those whose roots are edible; and those which bear fruit, need plenty of room in which to develop the fruit bearing branches.

Seeds of vining plants, as cucumbers, melons, squash, and pumpkin are usually planted thickly, as the early bugs and cutworms take some of the plants. Only three or four should be allowed to grow in each hill. Nearly all plants can be transplanted, some of them, as lettuce and parsley, seeming to grow faster after being reset than before. The best guide as to the room needed is a good reliable seed catalogue or garden text book, which usually gives the size of a fully developed plant.

To bring the best price on the market, strawberries must be clean, evenly graded, and of good quality. Do not use old packages for marketing. They are unsanitary and detract from the selling value of the fruit.

Are the currant bushes well filled with

nice, large fruit? Small fruit is not always chargeable to a poor variety, but is sometimes due to poor culture and no pruning. Currants are borne largely on wood three or four years old. Older wood should be pruned out and enough young wood also to prevent crowding. This may be done early in the spring or in the autumn. Cultivate and add barnyard manure to the plants occasionally.

Results from Home-Grown Seed

Leslie Harris, Brome Co., Que.

I have been experimenting to test the relative merits of seeds saved from my own garden as compared with those obtained from the seedsmen, and find that it is well worth while to collect as much as possible of my seed myself. I had often been warned not to risk the failure of my flower and vegetable gardens by planting my own seed since, it was said, Canadian-grown seed was almost sure to be perfectly ripened owing to the early frosts and uncertainty of the seasons in our climate. But anyone with good judgment can distinguish seeds that are plump and properly ripe from those which are not, and it is my experience that home-grown seeds germinate better and in larger proportion than bought ones.

Having bought a large quantity of sweet peas of the rarer varieties (some of them cost me a cent a-piece for the seeds) I wished to test them in comparison with some of the same varieties which I had saved from my garden last year. I planted them in individual pots in the greenhouse, to be set out in the open later when the ground should be ready. Ninety-five per cent. of my own peas came up promptly and were growing strongly before the bought ones had

put in an appearance. Several days later the bought seed began to come up in a half-hearted way, but only about one in ten of those planted germinated, and most of the plants were spindling and weak-looking.

I made the same test with pansy, aster, larkspur, and other seeds, with the same results, though in a less marked degree, all the bought seed used being from the most reliable dealers, yet in every case proving less vigorous than that grown in my own garden.

Killing Dandelions

Cut the dandelion roots off below the surface of the ground.

Gasoline or kerosene, applied at the crown of the dandelion, will kill individual plants.

When only a few stray plants appear persistently use the spud, or knife.

On badly infested lawns, good results may be obtained by spraying with sulphate of iron. Use one and one-half pounds of iron sulphate, which can be purchased at any drug store, to one gallon of water, remembering that it will discolor clothing and cement walks.

Apply the spray three days after the lawn is cut, on a bright day when the possibilities of rain are slight.

The solution should be applied with a sprayer which gives a fine mist-like spray—a sprinkler is not satisfactory.

The lawn should be sprayed about once a month during the summer, and not cut or watered for three days after the solution is applied.

Whatever method of eradication is used, it is always well to reseed the lawn in April, June, and September.

For reseeding, eight or ten pounds of seed should be used on a lawn, one hundred by one hundred and fifty feet. The seed should be sown broadcast, raked in, then watered.

A good lawn-grass mixture is fourteen pounds of Kentucky blue-grass, two of white clover, and two of red-top seed—buy good clean seed and mix it yourself.

Besides this reseeding, it is well to scatter nitrate of soda over the lawn before a rain or just before the lawn is sprinkled. Fifty pounds will fertilize a lawn one hundred by one hundred and fifty feet.

We have learned by experience that in a border where continuity of bloom is desired all the tall plants should not be put at the very back. The late blooming sorts are most of them tall, and if they are all kept in the rear there is a dearth of bloom near the front in late summer or autumn unless annuals are used, most of which do not go well with perennials.—W. T. Macoun, C. E. F., Ottawa, Ont.

Chrysanthemums and Their Culture

Wm. Hunt, O.A.C., Guelph, Ont.

CHRYSANTHEMUM plants, whether plunged in the ground in pots or planted out in the open garden, require plenty of water at the roots, as well as spraying to prevent insect pests. The tips of the young growth from time of starting of each shoot should be pinched off when the growth is about eight inches in length. This "pinching off" or shortening should be discontinued early in July and the plants allowed to grow after that. The last repotting should not be later than the second week in July. Early in September, or perhaps late in August, the plants planted out should be dug when the ground is wet, and potted into large pots into rich soil. Give them some shade for a few days or a week. Keep the soil well moist at the roots and spray the tops every day with clear water. Those in pots should be lifted and treated in the same way, except that they would not require to be potted.

Keep the plants out of doors as late as possible under partial protection, the early white frosts will not injure them if slightly protected at night. Take them into the window toward the middle of September so that they will not be exposed to more than two or three degrees of frost. By protecting them on cold nights, they may sometimes be kept out of doors until quite late in the fall. This is better than taking them indoors too early.

The buds of the large flowering varieties may be thinned when they are about the size of peas if large flowers are wanted. Thin out the smallest and weakest buds here and there on each branch or shoot. I do not advise disbudding to only one bud to a stem, for amateurs. If this is done, leave the largest and best buds near the top of each stem or branch, what is known as the crown bud. Pompons or single, small flowering varieties are best not disbudded at all. The Pompons make splendid pot plants for the window.

One of the best remedies for almost all of the insect pests that attack chrysanthemums is to fumigate the plants with tobacco or hydrocyanic acid gas. It is not possible for amateurs to fumigate plants with these unless with special conveniences. The next best remedy is to spray the plants with strong tobacco solutions or with kerosene emulsion. The last-named should not be quite as strong as is used for fruit trees. One of the best solutions I have found is to make a kerosene solution by boiling in two quarts of soft water, two ounces of finely sliced common soap until dissolved. Take it away from the fire, and at once, while the soap solution is quite hot, stir in half a pint of coal oil, stirring it well for ten minutes, then add three gallons of cold water and mix thoroughly with the soap mixture. Instead of using water as last mentioned, the

same quantity of water in which about one half pound of tobacco leaf stems, refuse from the cigar factory, or dried tobacco leaves, or even a large plug of smoking tobacco had been boiled, will make the solution more effective.

Apply the solution when cold in a fine spray to the tips of the shoots for the plant bug, and to the other parts infested with the insects, more especially to the under side of the leaves for red spider. Kept in a cool place the solution will keep good for several weeks. Dusting the terminal points of growth with dry Pyrethrum Powder, dry, soft coal soot, or tobacco dust when the foliage is damp (not wet) after the kerosene emulsion has been applied, is an additional remedy for the attacks of the Tarnished Plant Bug.

The Tarnished Plant Bug is a small insect barely half an inch in length, of a bronzy brown color. It punctures the extreme point of growth, causing "blind" or non-flowering growths. It is very quick in its movements, especially in the heat of the day. It does not seem to work very much in the shade, and can be caught with the hand very early in the morning. Shading the plants during July and August would be beneficial. Spraying every day early in the morning with clear or soapy water through the hot weather is a good preventative for the attacks of all insect pests. Sulpho-Tobacco Soap, to be had at seed stores, is a good insecticide.

Summer Care of Palms

B. Tillett, Hamilton, Ont.

After the apple blooms fall, place palms outside in a sheltered position, where they can be given plenty of water. At this time, if they are not repotted, bone meal should be worked into the surface of the soil and a liquid manure of bone meal given once a month or so during the growing season.

Both during winter and summer, shower the leaves frequently with as forceful a stream as possible, to prevent scale and mealy bugs getting a start. Keep the leaves and stems clean by wiping off every once in a while with a soft cloth and soapy water, syringing with clean water afterwards.

Close to the house on the south side is not a good position for a climbing rose. The heat is too intense and concentrated in the summer to get good roses. Insect pests are also induced in this position by the heat. An east or west aspect is the best for climbing roses. The north side, if not too close to the building, would do fairly well. In any case, the roses should not be trained too close to the house. A few inches of space to allow for spraying and circulation of air is best.



A First Prize Porch in a St. Thomas Competition: That of J. A. M'Cance

Successful Methods with Strawberries and Tomatoes

J. C. Inman, Eden, Ont.

A DOZEN years ago a school teacher in southern Ontario began to study the complex problem of living and coming out in the end with enough hard cash to tide over the winter of old age. School teaching, while one of the most important branches of national upbuilding, was not what could be called a money-making occupation.

Viewing things from this attitude the school teacher began to search for some employment which would yield larger monetary returns. After careful study, he decided on farming. In the backyard of his simple home he had some money from a small piece of land, and by using the ordinary act of multiplication he had determined the amount he should make from a ten acre lot.

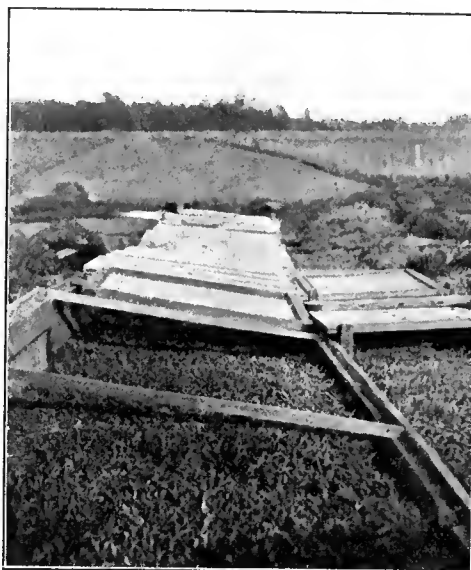
In due time this school teacher, who, we might state, is Mr. William Walker, of Port Burwell, Elgin, Ont., moved to a twelve acre lot on the edge of Port Burwell, which, after taking out the ground occupied by the buildings and waste land contained about ten acres. To his friends the idea of making a living from ten acres was as new as it was absurd. Although Mr. Walker did not know a great deal about his new vocation, he did know that the sandy hilltop soil on the edge of the town was adapted for the production of small fruits and tomatoes, which were just then coming into publicity. He had also observed that the hilltop was the last piece of land to get hit with the frost in the early autumn.

A part of the ten acre farm was what is commonly known as "a low spot." It had never produced much under the old management, but it had been left as nature designed it. In wet years it was practically useless. Mr. Walker felt sure that the low spot should be drained and made productive. He had an idea, too, that it would improve the whole farm if it were properly tiled. So he put in what is known as a deep drain twenty rods apart, over the whole ten acres. While it cost considerable, he has not kicked since about "wet spots," or a cold unnatural soil.

One of Mr. Walker's next steps was to contract with the two town livery men for all the manure produced in their stables. It comprised a lot of fertilizer, but he thought that he knew what he was doing, so he spread it all on the little ten acres just as fast as it came. This was done in spite of repeated warnings from kind friends who feared that he would sour the soil. The first year he did not do much but fit the land up although he did plant some of the ordinary farm crops, from which he secured some wonderful returns.

The preliminary work was money and time well spent. When a small patch of tomatoes was planted the next year they produced a crop that gave Mr. Walker some new ideas regarding making a living off ten acres. The strawberries also did well, and as there was a good market for them he planted out more the next year and began to feel the genuine pride of the man who grows things and gets well paid for his labor.

The story so far is much the same as



Mr. Walker's Tomato Starting Bed

It is not very artistic but has proved decidedly efficient as a money-maker.

any other story of its kind, so we may as well skip ten years and come up to 1913. Last season the crop was as follows: Strawberries, two and a half acres, tomatoes four acres, and three and a half acres in raspberries, cauliflowers, cabbages and potatoes. The returns from this three and a half acres were not kept track of except in a general way, but they paid for the general expense of running the farm, such as hired help, repairs, interest on investment, and living expenses. It may hardly seem possible to make three acres do all this, but that it did will not be doubted when the exact proportions of the other six and a half acres is given.

Taking the strawberries first: the two and a half acres produced seven hundred and sixty four crates or three hundred and five and three-fifths crates per acre, which sold at an average of two dollars and sixty cents a crate at the farm. After deducting fifty cents per crate for crates, picking, and so forth, we get sixteen hundred and four dollars as the income from two and a half acres.

The tomatoes returned two thousand one hundred and fifty-two bushels. At thirty-five cents that equals seven hun-

red and fifty-three dollars, besides seventy-four dollars for early tomatoes. This brings the total up to eight hundred and twenty-seven dollars and twenty cents, and a grand total of twenty-four hundred and thirty-one dollars for the six and a half acres.

The method of strawberry culture followed is perhaps not a great deal different from the average but it is at least worth outlining. The first requirement is to have the land well fertilized with manure and an occasional application of the commercial product. The plants come next, and although he may be old fashioned Mr. Walker sticks by the old stand-by (Williams) because he believes he can get no better. He selects the largest and healthiest plants and places them in rows four feet apart, and two feet apart in the row. He has also experimented with the block system but as yet prefers the rows as they require less work in proportion to the returns. The rows are allowed to become two feet wide and are kept from fruiting the first season. An application of manure is given in the fall, and the plants covered with a good straw mulch, in which condition they are left through the winter. When the first real warm days of spring arrive the straw is raked between the rows and acts as a weed preventative and as a knee rest in picking. The plants are kept from spreading as much as possible in order to force the growth into the berries to get them as large and uniform as possible. This is very important as it is the well formed, good colored and uniform fruit which commands the top price regardless of market conditions.

Only one crop is taken off as it has been found rather risky to depend on a crop the second year, as if the season is dry, the berries will dry up and the crop will be practically a loss. The following spring the plants are dug up and sold to future strawberry growers at a good profit and the area put into tomatoes.

Tomato growing is different from strawberry growing but the two crops have grown together admirably. The waste strawberry plants and wheat straw-berry form a good mixer for the soil, and put every foot of it in truck garden condition.

The plants which are raised in a hot house until eight or ten inches in height, are planted about the middle of May, or after all danger of frost is over. The method followed may be a little new and startling to most people. The plant is set in a hole, partially filled with good manure. The plant is laid flat on the ground, as it has been found that the



Cultivating Strawberries on Mr. Walker's Farm. Mr. Walker and his Hired Man are Shown

plant will keep more moist and alive when lying down than when standing up, in which position it often wilts from the fierce heat of the sun. The plants are set four feet apart each way and cultivated continually until they become too large to allow a cultivator to pass through without injury. At least twenty loads of manure are applied per acre previous to plowing and this in addition to the portion given to each individual plant brings the total up to twenty-five loads, which is as much as some one hundred and sixty acre farms get in grain growing sections. Great care is taken to select strong, healthy, well advanced plants, before the early fall frosts. Chalk's Jewel and Matchless are the varieties grown.

The tomatoes are picked in bushel crates and drawn on wagons to the factory, a quarter of a mile away, the price being thirty-five cents per sixty pounds. The first few that get ripe bring a much better price, from a dollar and a half up to two dollars and seventy-five cents for an eleven quart basket. These tomatoes go direct to the cities to satisfy the early tomatoe hunger of those who are rich enough to pay the price.

AN EARLY VARIETY

Mr. Walker is constantly obtaining new ideas which improve on his past attempts. For instance he struggled along for years trying to perfect an early tomato plant, which would be certain to mature before the fall frosts, and while he has greatly improved on the old original, he still loses from one to four hundred bushels per acre from frost. With the idea of saving this he started to experiment with different coverings to be put over the plants in the spring to save them from the late frosts and to enable him to get the plants in earlier. The main difficulty was to get something inexpensive. After various experiments he has decided on cheese cloth bells on wire frames which can be manufactured for about four cents apiece, and which may earn their cost several times over the first season.

During 1913 the receipts were nearly twenty-five hundred dollars net, not including the amount received from plant sales in the spring, which amounted to over six hundred dollars.

Tomatoes Under Glass

In the annual report of the Central Experimental Farm, Ottawa, for 1912, the results of a variety test of tomatoes in a small greenhouse at the Central Experimental Farm were recorded. During 1913, eighteen varieties and strains were again tested in the same house. This house is used for ornamental plants as well, and only part of the space was available for the tomato plants. The plants were set fifteen inches apart in a single row on the benches on each side of a central walk, sufficiently far back so that a row of begonias could be grown in front of them. As they grew, the plants were tied to wires and kept pruned to single stems. Four plants of each variety were used, two plants of each variety being on each side of the walk opposite each other. The seed was sown on June 12, 1912, germinated on June 18, the young plants were pricked out in a cold frame on June 24, and planted in the greenhouse on July 24.

The plants made rapid growth and the first ripe fruit was picked on September 16 from Sparks Earliana No. 10 strain. Early in the season, the plants produced large clusters of flowers, the fruit set well, and there were prospects of a good crop, but, during the months of August and September, there was much rain and dull weather, there being 99.9 hours less sunshine than the average during August, and 108.0 hours less than the average during September. As a result there was a poor setting of fruit during September. By the end of that month the plants had reached the top of the house and, as there was practically no fruit on them except near the bottom, it was decided, as an experiment, to head them back to within three feet of the soil. This was done on September 28.

Most of the plants, though checked

severely, recovered from the effects of the heading-back and made medium growth again. On the new growth some moderately good fruit set, but the results obtained from such severe checking of the plants were not such as to warrant recommending it, as the different varieties did not recover equally well from the heading-back.

The yields obtained in 1912-13 are not reliable, but, as indicating the varieties which are likely to give the largest yields in an unfavorable season, and under such treatment, the following record is given of the six most productive sorts, the varieties tested being Winter Beauty, Industry O.A.C. Selected 1910, Industry O.A.C. Selected 1910-11, Improved Express, Sutton's Satisfaction, Sparks Earliana No. 10, Bonny Best, Sparks Earliana (C.E.F. 2-12), Chalk's Early Jewel, Dobbie's Champion, Dominion Day, Wealthy, Sutton's A1, XXX Earliest Scarlet, Cox's Earliest, Greater Baltimore, Livingston's Globe.

Last year, in a test of twenty-one varieties and strains, the most productive six in order of yield were Industry (O.A.C. Selected 1910), Sutton's Satisfaction, Industry (O.A.C. Selected 1910-11), Livingston's Globe, Dobbie's Champion, and Bonny Best. It will thus be seen that the three varieties which did best for the two years were Industry, Sutton's Satisfaction, and Bonny Best.

Potato Scab

Prof. E. M. Straight

If the soil on a certain area is free of scab, it may be kept so by paying proper attention to the seed, bags, baskets, barrows, plows, planters, cultivators—all of which may carry contagion, if they have been in contact with diseased tubers.

One of the cheapest and simplest disinfecting agents is formalin. Formalin is a liquid, having a sharp, pungent odor. It is a solution of formaldehyde gas, containing about forty per cent. Formalin should cost about forty cents a pint.

The formula commonly used is as follows: Add one-half pint of commercial formalin to fifteen gallons of water, stir thoroughly and soak uncut tubers for two hours in this solution.

Growing Melons.—The most suitable soil for melons is a rich, warm, deep, sandy loam, having a southern or southwestern exposure. The latter is to be preferred, as it gets the last rays of the sun and the soil is thus warmed up for the night, and being sheltered from the northern and eastern winds, holds the warmth until the morning. This makes several days' difference in the ripening of the fruit, which may be equivalent to quite a sum per acre in the value of the crop.—John Gall, Inglewood, Ont.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.
Published by The Horticultural
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PETERBORO, ONTARIO

H. BRONSON COWAN Managing Director

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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee-keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, \$1.40 an Inch. Copy received up to the 25th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1911. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 15,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,626	Total	150,293
Average each issue in 1907,		6,627	
" " " " 1913,		12,524	

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts. Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

The late Linus Woolverton

The announcement of the death of the late Linus Woolverton was heard with a sense of personal loss by an unusually large number of Canadians. From 1887 to 1904 Mr. Woolverton was the editor of The Canadian Horticulturist. In this position he became widely known to those interested in horticulture all through Canada. Being a recognized authority in agricultural matters, Mr. Woolverton was a worthy successor of his predecessor, the late D. W. Beadle, and did much to establish the reputation of The Canadian Horticulturist as an authority on horticultural matters.

Probably Mr. Woolverton's greatest monument is his book entitled "The Apples of Ontario," on which he spent many years of work and which is the recognized authority on this subject in Canada. He also accomplished much on behalf of the interests of the fruit growers of Canada while he was secretary-treasurer of the District Experiment stations of Ontario. Mr. Woolverton was ever ready to help the novice or to give aid whenever opportunity allowed. His death removes one who never spared himself to advance the interests of his brother fruit growers.

AN ENTOMOLOGICAL DIVISION

Several years ago The Canadian Horticulturist pointed out editorially that the Dominion Government might well pay more attention to the work of the Entomological branch of the Dominion Experimental Farms. Attention was called to the fact that there was no sufficient reason why this branch of the work of the Department of Agriculture should be classed with the work of the experimental farms. It was suggested that it should be made a separate department with a head responsible only to the Deputy Minister and the Minister of Agriculture. Such a division has now been made. Credit must be given to Hon. Martin Burrell, for inaugurating the change.

The Entomological Division is one of the important branches of the United States Department of Agriculture. This has been because its head has had greater power of initiative than would have been the case had the work of his department been maintained as a mere branch of some other line of governmental activity. Under the new arrangement we may expect to see our Canadian Entomological Division increase in importance. It should also receive more liberal financial assistance than it has hitherto.

This division is charged with the responsibility of preventing the introduction and spread in Canada of injurious insects, the investigation of insect pests affecting agriculture, horticulture, forestry and the health of domestic animals and man, and the imparting of the information so obtained to the public by means of bulletins, press notices, addresses, and in other similar ways. Its chief, Dr. C. Gordon Hewitt, is well qualified for the position he holds. He may be expected to take full advantage of the increased opportunities he will now have for public service.

CIVIC BEAUTIFICATION

In young countries it is always difficult to arouse public interest in schemes of civic beautification. An evidence that Canada is advancing out of the pioneer stage of development is found in the fact that towns and cities throughout Canada are giving more attention this year than ever before to comprehensive plans for civic improvement. Cities in the prairie provinces are fully abreast of the cities in the east.

"Clean-up" campaigns as conducted in the smaller centres are becoming increasingly popular and are another expression of the same desire for improvement. In some centres a commendable move has been made to improve the back premises as well as the front by the tearing down of ugly sheds and board fences, and the replacing of the latter by neat wire fences. This has led to the converting of many back yards into gardens and lawns. The international congress on city planning being held in Canada this year for the first time is an indication of advancement.

All over the continent steady even rapid progress is being made in the direction of placing the fruit industry on a firmer business basis. Guesswork is fast being eliminated. It was estimated last year that the fruit growers of the four Pacific Northwest States, Washington, Oregon, Idaho and Montana, lost two hundred and fifty thousand dollars on account of the lack of reliable crop estimates. Early in the season the crop was estimated to be fifty per cent. greater than it was. This year the North Pacific Distributors, the Central Selling Agency controlled by the growers, has arranged to take a tree census in the four States, in an effort to secure reliable and approximately correct information as to probable tonnage in the various districts. Every grower in the branches affiliated with sub-centrals of the distributors, will make a detailed estimate on his crop, tree by tree, and variety by variety. The estimate of the growers will not be taken as final but inspectors will visit every district and work on the basis of acreage and average in former years, and actual conditions on stated areas. These men will be experts, and by a double system of estimating fairly approximate figures can be secured. Using this system of estimating the Yakima Valley Fruit Growers' Association one season estimated within two carloads of its entire tonnage, and another season within twenty carloads. The general adoption of methods such as these will ultimately give the growers full control of their industry.

The extensive scheme of civic improvement that has been launched by the Peterboro Horticultural Society, including as it does a complete plan of parks driveways, is an indication of the truth that it is often easier to accomplish things on a large than on a small scale. Many organizations put forth more effort and achieve less returns by trying to do small things in a small way than could be effected were they to take a broader view of the problems in hand and devise a plan and method of work that by its uniqueness would be sure to challenge attention and enlist public support. Other horticultural societies may not be able to carry out just such a scheme as the Peterboro Society has launched, but they may be able to learn something from the methods that the Peterboro Society has followed.

SOCIETY NOTES

HAMILTON

A number of novel and interesting lines of work are being carried out this year by the officers of the Hamilton Horticultural Society. Arrangements are being made for a series of meetings in some of the best gardens of the city. This is a most popular and helpful line of work. Photographs are to be taken in a number of gardens which will be used for lantern slides at winter meetings. A perennial border has been started at Dundurn Park for educational purposes. A June flower show is planned.

PETERBORO

The officers of the Peterboro Horticultural Society have launched a most ambitious scheme of civic improvement. The city of Peterboro has many natural advantages. These have never been properly utilized for the benefit of the public. The city is without a park commissioner. Its expenditures for horticultural purposes have been small. Feeling that there was little use in waiting for the city fathers to move in the direction of civic improvement the officers of the society, early in the year, appointed a committee to consider the matter. This committee held numerous meetings, as a result of which a parks driveway was drafted which would link up all the parks, residential and manufacturing districts, and other points of interest. An effort was made to raise \$1200, in part from the Horticultural Society, and in part by private subscriptions. The required sum was raised in a few hours' canvass. This money is being expended during the next three years for prizes for the best lawns, verandah decorations, flower beds and window boxes used by residents along the driveway. Manufacturers and business men were interviewed and asked to improve their places in business by the setting out of window boxes and the planting of shrubs and vines. The response was immediate and enthusiastic. Officers of the Board of Trade and the Ad. Club cooperated. This preliminary work was carried on quietly for several weeks. Recently a citizens' banquet was held, attended by the mayor, members of the city council and other leading citizens. A map of the city showing the proposed driveway was produced and the plan of civic improvement explained in detail. The scheme was enthusiastically endorsed. The city council was asked to improve the roadways and to look after the boulevards and the planting of trees along the several miles of roadway. Its cooperation was promised. Park Commissioner C. E. Chambers, of Toronto, was in attendance and gave a most helpful address, warning the city against mistakes that it might easily make, and giving valuable suggestions based on what he had seen during an automobile trip over the proposed route made earlier in the year. Mr. Morton, of the Forestry Division, Ottawa, described the best varieties of trees to plant.

A committee is now at work appointing ward committees to look after the work in each ward. The people living along the route of the driveway are to be canvassed, and urged to give their cooperation. The chairman of each ward committee will be a member of a central committee that will have general oversight of the whole work.

Among the main workers have been President, C. Beal; vice-president, F. Wise; Secretary, C. Williamson; R. Denne, H. B. Cowan; B. Hall, president of the Board of Trade, and G. O. Cameron, president of the Ad. Club.

ST THOMAS

Mayor J. H. Bennett, of Barrie, the president of the Ontario Horticultural Association, gave an address recently before the members of the St. Thomas Horticultural Society, on the subject "Hardy Perennials and Herbaceous Paconies."

The Society took advantage of the visit to the city of the Duke of Connaught, Governor-General of Canada, and his daughter, Princess Patricia, to have the Duke plant an English oak in one of the city parks. Dr. F. E. Bennett, president of the society, presented their Royal Highnesses with a spade prepared for the occasion. During the proceedings a beautiful basket of flowers was placed in the royal auto by members of the society. The basket bore an engrossed card, which read as follows: "To the Princess Patricia: May it please your Royal Highness to graciously accept this basket of flowers collected from the gardens of the members of the St. Thomas Horticultural Society."

The spring flower show of the society was held recently in one of the city stores. Fifty exhibitors had one hundred and twenty-five entries on exhibition. The exhibits were in the main tulips, but hyacinths, pansies, polyanthus and violets were also shown. The ladies of the society served tea in the gallery of the store. The store was kept open until ten o'clock, when the flowers were sold.

Some trouble having been experienced through the depredations of tulip thieves, the society recently offered a reward of ten dollars for information which would lead to their detection and conviction. Five lads, ranging in age from five to thirteen years, were caught and their parents were required by the police magistrate to pay fourteen dollars and costs incurred by reason of the

depredations. The boys were let off with a warning.

The society on May 9th conducted a tree planting ceremony at Pinafore Park. The trees planted included Willows-of-Babylon, Weeping Teas, elms, magnolias, and catalpas. Each tree was nicely labelled by an iron sign, giving the common and botanical name, habitat, and words "Planted by the St. Thomas Horticultural Society." The mayor of the city cooperated in the ceremonies.

A party from the society, headed by President Bennett, visited Rochester on Victoria Day to see the azaleas and rhododendrons in bloom, and the other horticultural features of the city.

OTTAWA

The children that are members of the Ottawa Flower Guild met recently in the garden of Mr. R. B. Whyte, where Mr. F. E. Buck, of the Experimental Farm, gave a practical demonstration of seed planting. The secretary's report, read at the recent annual meeting of the Guild, showed that there were two hundred and thirty-three children enrolled. The officers of the current year are President, R. B. Whyte; vice-president, J. A. Ellis, M.L.A.; secretary-treasurer, Miss E. McManus. Mr. W. T. Macoun and Mr. F. E. Buck are on the executive committee.

PICTON

The Picton Horticultural Society held a meeting recently at which the subject discussed was "Beautifying Picton." The main speaker was Mr. E. Edward Starr, of Whitby. The society is arousing an interest in civic beautification.

ST. CATHARINES

On May 16th the membership of the St. Catharines Horticultural Society passed the nine hundred mark, which is one hundred and twenty more than the total for the previous year. The officers expect to reach the nine hundred and fifty mark.



Floral Exhibits in a Merchant's Store Window

These exhibits were arranged by the officers of the St. Thomas Horticultural Society. They were much admired by the citizens.

Cooperative Work in the Annapolis Valley*

A. E. Adams, of the United Fruit Companies, Ltd., Berwick, N.S.

YOU are all familiar with the formation of the Cooperative Fruit Companies in the Annapolis Valley of Nova Scotia, and are to a greater or lesser extent familiar with their history. It is a curious fact that the originators of the movement here knew little or nothing of the movement elsewhere, and shaped their course purely by what they considered the immediate necessity of the moment.

Our leading fruit growers felt and knew that there was something radically wrong with the method in which the products of their orchards were being handled. They knew that individuals speculating with their fruit were making money much faster than was the producer.

They had the right idea, the same as that of the pioneers of the movement across the water, namely that profit derived from apples should go to the producer of the apples. That is the principle under which we are working to-day. Unlike Denmark, Nova Scotia started on the marketing end of cooperation first and having got that fairly under way is now giving her attention to cooperative buying, but whichever end is handled first the result is and must be the same. Cooperation is bound to be a success wherever and to whatever problem it is applied, the only thing necessary is that all members thoroughly understand the great principle for which they are working.

FURTHER COOPERATION NECESSITATED

When, owing to the success that had attended the initial efforts of the fruit companies, others had been formed, it was realized that through the multiplicity of companies they were defeating their own ends, inasmuch as they were competing the one with the other to market their products, and the wily speculators were pitting one company against the other, and thus securing the apples almost as cheaply as ever. On account of this multiplicity of companies they were unable to accomplish that which they set out to do, namely, "bring producer and consumer closer together," they were as it were so many units whose power for good was ineffectual on account of their lack of central organization. Instead of working together they were fighting against one another. At last their leaders realized:

"Cooperation—not strife—
Is the Divine law of life."

And proceeded to incorporate all the companies into one central association, obtaining a special charter from the provincial government for that purpose. Thus did The United Fruit Companies of Nova Scotia, Limited, come into existence.

My paper would be incomplete without naming John N. Chute the father of cooperation in Nova Scotia, John Donaldson, S. C. Parker, your president, and A. E. MacMahon, who by their zeal and untiring efforts without reward, alone made this important centralization possible.

THE WORK ACCOMPLISHED

Possibly it is unnecessary for me to give in detail the splendid work accomplished by the Central during its brief existence. In the first year before it was incorporated, realizing that the record crop with which the Valley was blessed would never be harvested with the help at hand,

*Extract from an address delivered before the last annual convention of the Nova Scotia Fruit Growers' Association.

it brought in some four hundred helpers, and thus saved the situation for many a grower.

The same year, realizing that the steamship companies had utterly failed to provide sufficient transportation for the tremendous crop and that thousands of barrels of soft varieties were lying at Halifax sweltering in the sun, it made arrangements with the Intercolonial Railway (the People's railway) and sent train load after train load up to Montreal to load in the fast mail boats.

It followed this up by chartering four great steamships of the Warren Line and lifted forty thousand barrels of fruit which would otherwise have rotted. This action forced one of the greatest steamship companies in the world to buy out the Warren Line, and has thus secured for the fruit growers of the Valley a service of splendid fast steamships to carry the fall fruit. It thus saved all growers, whether cooperators or not, thousands of dollars.

In the same year the company opened up the western markets for our famous Gravensteins, and thus gave a new lease of life to that excellent apple. It also secured for the Valley a supply of specially lined cars almost equal to refrigerators by which every grower in the Valley benefits during the cold weather. In spite of the opposition in its own membership it reduced the price of fertilizer in the Valley by five dollars or six dollars a ton.

COOPERATIVE MARKETING

Before starting to explain the advantages of cooperative marketing I would like to impress on you one aspect of cooperation that I am afraid is not properly understood by our fruit growers. I feel this lack of knowledge among our membership and even I am sorry to say, among the directorate, hence my excuse for dealing with it here.

Very few of the members seem to realize that they are themselves The United Fruit Companies, they speak of letting the Central have their fruit as though the Central were some speculating firm buying their apples. They speak of buying their feed and flour, their fertilizer and seeds, from the Central if the price is right, all of which is evidence that they do not understand the situation.

The United Fruit Companies do not sell an ounce of anything to any member, they simply distribute what the members have authorized them to buy for them. It is exactly similar to the case of the English cooperator and his pair of boots that I cited a while back.

When that humble artisan goes to the store and gets his boots he pays a sum of money spot cash for them which is not a cent less than he could get a similar pair for from the store next door. He does not concern himself with the price; all he bothers about is the quality. He wants a certain kind and a certain quality, and gets it; the price is immaterial. Why? Because he knows that at the end of the season all the profit made on those boots, after necessary expenses are deducted, will be refunded to him in his dividend.

Had this cooperator and his fellows told the manager of their store that they could get a similar pair of boots next door for the same money and had got them, would the cooperative movement have developed as it has in England? Certainly not. It

is simply the abiding faith of these operators in the ability of their servants, the Central, to ultimately do better for them than they can themselves, their absolute loyalty to their fellows, that has made success possible.

Efforts are constantly being made in England to get cooperators to be disloyal to their fellows by offering them snaps, but these cooperators so thoroughly understand the great principles of their movement that all these efforts are futile.

SIMILAR EFFORTS HERE

Yet here in the Annapolis Valley a company manager will write to Central who has been instructed to buy the year's fertilizer by that actual company, stating "Please quote your prices and if right members will probably buy." They do seem to realize that we have already given our instructions and have bought their fertilizers for them, and have made all arrangements to, in due time, distribute it.

They don't seem to realize that if so local agent has given them what they consider a tempting price, it is only done to fight their own society, only done in endeavor to kill their own business.

They don't seem to realize that if fertilizer agents are quoting low prices it is only the fact of their own action in operating in buying, that has forced the fertilizer agent to bring his price down.

They don't seem to realize that through themselves can through their own tremendous buying power, obtain their supplies lower than any that can be supplied by middlemen.

They don't seem to realize that central firms are prepared to sink a large sum of money to supply goods at a price as low as the Central's if by doing so they can discredit and disrupt this cooperative movement.

Cooperators must be loyal to themselves if the great benefits of cooperation are to continue.

I know of actual cases that I can prove by documentary evidence, of wholesale firms right here in the Valley, supplying wheelbarloads of fertilizer at over a dollar a ton less than it cost them in order to keep certain companies out of the central, even then did not get as low as central price. I hope that all cooperators think of that aspect of cooperation, and understand the true import of it.

Recent Bulletins

Circulars and bulletins that have reached The Canadian Horticulturist recently, include the following:

"Ten Years' Profits from an Apple Orchard," is the title of Bulletin No. 376, U. P. Hebrich, of the New York Agricultural Experiment Station, Geneva, N. Y. This bulletin contains valuable information relating to the cost of tillage, growth of cover crops, pruning, spraying, harvesting, as well as the average profits of an orchard.

Another valuable bulletin by the same author and station is one entitled "Tillage and Sod Mulch in the Hitchings Orchard." This is bulletin No. 375. This bulletin, the most instructive one, is well illustrated and should be applied for by all growers interested in the subject.

The New Hampshire Experiment Station, Durham, N.H., has issued Bulletin 168, J. H. Gourley, entitled "The Effects of Fertilizers in a Cultivated Orchard."

Experiments at the Central Experimental Farm

THE report of the director of Experimental Farms for 1913, contains the following description of the work of the Horticultural Division:

The area of land in the Horticultural Division at the Central Experimental Farm, Ottawa, is ninety-nine acres, divided as follows—

Fruits and vegetables, 46 acres; Forest belts, 21 acres; Ornamental grounds, 30 acres; Nursery and rose garden, 2 acres; Total, 99 acres.

On this land are grown tree fruits, small fruits, vegetables, forest trees, and ornamental trees, shrubs and herbaceous plants in more or less permanent plantations and in nursery rows. The lawns are extensive and require much care to keep them in good condition. Owing to the large number of experiments in progress, the work involved in giving the necessary attention to them on this ninety-nine acres is very heavy compared with what it would be on the same area under commercial crops, where the labor involved could be reduced to a minimum.

SUB-DIVISION OF THE WORK

The Horticultural Division may at present be divided into five parts or heads under which most of the work falls. These are as follows: Pomology, Vegetable gardening, Ornamental gardening, Plant breeding, Correspondence and office work.

In addition to these, or rather included in them, is the work in connection with the branch farms, the forest belts planted both for ornamental purposes and to test the rate of tree growth; meetings attended; publications; and visits to the horticultural districts for the purpose of studying conditions in different parts of Canada.

Under pomology is included the study of varieties of fruits for the purpose of learning their relative merits in regard to yield, season, quality and profit. It also includes the identification, classification, and description as well as the propagation, planting, and care of fruits, with experiments in cultural methods, including spraying. The exhibition and judging of fruits may also be grouped under pomology.

During the past year, this part of the work has received much attention. Many varieties have been described in detail on cards, which are filed for future reference and compilation. Varieties sent in for identification have been named, and the information sent to the correspondents. Many new varieties were propagated for test on the Central and Branch Farms and for trial in other places, and a number of new ones have been planted out at Ottawa.

Fruit was exhibited at the Provincial Exhibition, Quebec; the Central Canada Exhibition, Ottawa; and the annual meeting of the Society for Horticultural Science, at Cleveland, Ohio. Fruit was also judged at several places by Officers of the Horticultural Division. The general care of the orchards at the Central Experimental Farm also involved much work.

VEGETABLE GARDENING

This includes the testing of varieties of vegetables for comparison of their relative merits as regards season, yield, quality, etc.; the comparison of different strains of the same variety; cultural methods, and spraying; and the study of commercial methods, both in the field and under glass. In 1912 especial attention was paid to pota-

Douglas Gardens

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Bedding Plants

China Asters—Queen of the market, white, Queen of the market, pink; Lavender Gem, Royal Purple. Upright white, and Crego pink. Grown in pots in fine form. Price, 10 for 25c; 100 for \$1.25. Not less than 25 of the one sort at the rate per 100.

Antirrhinum (Snapdragon) including silver pink and Scabiosa. Prices 10c each; 10 for 60c.

Salvia, "Bonfire" and "Zurich," each 10c; 10 for 75c.

Geraniums (only a few left) at 10c and 12c each.

Dahlias, choice sorts and fine plants, each 15c; 10 for \$1.25.

Stocks, fine plants in two varieties, 10 for 25c.

Arabis Alpina, 10 for \$1.25, 100 for \$10.00.

Gladioli, light colored, unnamed, 25 for 75c.

Red and Scarlet, unnamed, 25 for 60c.

Above prices include carriage prepaid.

JOHN CAVERS

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Big Ben is a mighty pleasant looking fellow. His big, open honest face and his gentle tick-tick have earned him a place in thousands of *parlors*.

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toes, though all the principal kinds of vegetables were under experiment.

ORNAMENTAL GARDENING

Under ornamental gardening comes the culture of ornamental trees, shrubs, and herbaceous plants; the study of their individual characteristics, such as height, form, coloring, and season of bloom; that information will be available to gardeners to enable them to plant their plots in such a way that the trees, shrubs, and herbaceous plants will blend or be contrasted with one another to form pleasing landscape effects. The education of people by lectures and bulletins on ornamental gardening and the encouragement of the beautifying of home surroundings, much needed in Canada, is also a part of ornamental gardening which received attention during the year. In addition, large collections of roses, irises, phloxes, paeonies, lilacs, gladioli, geraniums, and other ornamental plants have been got together to study. There was a fine display of them at the Central Farm in 1912, and visitors were much interested in them and pleased with the ornamental grounds as a whole.

The forest belts, planting in which was begun in 1888, furnish interesting data on the relative growth of the different timber trees and the merits of having the species or planting them in blocks of one kind. Annual measurements of a number of trees were taken in 1912, as in previous years.

PLANT BLEEDING

The improvements of fruits, vegetables, and ornamental plants by cross-breeding and selection and the study of the laws of inheritance in different kinds and varieties of horticultural plants is, in brief, the field of work which is covered in plant breeding in the Horticultural Division. Up to comparatively recent years, Canada had to depend almost entirely on other countries for her new varieties of fruits, vegetables, and ornamental plants, while many of these succeed admirably in this country, it is felt that, if originated in a climate more nearly like where they are to be grown than has been the case in many instances in the past, those that show special merit are likely to prove more useful than those introduced from climates very dissimilar. During the past twenty years, much attention has been paid to the breeding of horticultural plants at the Central Experimental Farm. Many varieties of hardy hybrid apples, crosses between the Siberian Crab (*Pyrus baccata*) and the apple originated by Dr. Wm. Saunders have already been introduced into prairie provinces and have proved harder than any previously tested there. Several crosses made by Dr. Saunders with the blood of the larger apples and having a lot of good marketable size were propagated in 1912 for introduction. Many varieties of apples of handsome appearance and quality have originated in the Horticultural Division and the best of these have been sent out for test to different parts of Canada to compare with those already in market. More than two hundred of the new sorts have been propagated, eighty-two of the best, named.

A large number of seedling strawbees has been raised in the Horticultural Division, and some of the best are being propagated for introduction. Special attention is being paid to the development of strains of vegetables which will be of value in the colder districts of Canada as well as in the more temperate parts. Progress was made in this work in 1912 and provision has been made for greater

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Dominion of Canada

Department of Agriculture.

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I am pleased to inform you that the three queens were received in good condition, and have been safely introduced.

I have the honor to be, Sir,

Your obedient servant.

(Signed) C. GORDON HEWITT.

Dominion Entomologist

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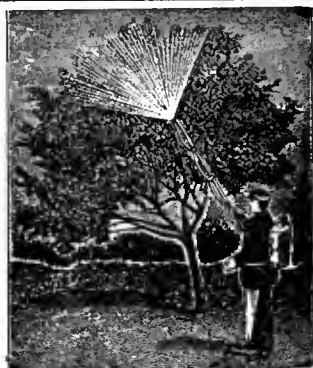


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available has been so limited that it was not possible to do much experimental work under glass, but with the five ranges now available it will be possible to do much more and better work.

Annapolis Valley Notes

The season still continues cold, and probably the latest on record, the leaf buds of apple trees just beginning to unfold by the twentieth of May. Readers of The Canadian Horticulturist will remember that in August, of 1912 the Nova Scotia Government by special orders in Council passed a regulation prohibiting the importation of nursery stock from countries known to be infested with San Jose Scale unless such stock bore a certificate from Government officials that the nursery from which it came was free from this scale.

Under this regulation, no stock from Ontario was admitted into this province in 1913. But the Nova Scotia market for apple trees is very profitable for our Ontario friends, and consequently their nursery received in homely parlance "a lick and a promise," which was enough, however, to obtain the desired certificate from their provincial inspectors for the stock to be marketed in 1914.

When this stock began to come to Truro and Digby, the Nova Scotia ports of entry this spring, it had to undergo a different kind of examination and was found to be pretty generally infected with living scale and was, of course, rejected. The United Fruit Companies had taken large orders among their members, all of which had been cancelled at the last moment. Because of this careful work, the Provincial Entomologist, Prof. W. H. Brittain, received a vote of thanks from the Executive of the Nova Scotia Fruit Growers' Association that met at Kentville on May 5th, where the following resolution was passed:

Whereas, nursery stock coming from points in the United States and Canada have been found to be infected with the San Jose Scale; and

Whereas, by prompt action and at great expense, this pest has been practically exterminated from Nova Scotia, after having been introduced on nursery stock from Ontario and the United States, and,

Whereas, the introduction of the San Jose Scale into Nova Scotia would seriously jeopardise the fruit growing industry of the province;

Therefore resolved, that the Executive of the Nova Scotia Fruit Growers' Association, here assembled, petition the Nova Scotia Government to refuse entrance to all stock found bearing Scale, whether from Ontario or from the United States.

M.K.E.

Mr. M. B. Davis, B.S.A., was recently appointed Assistant in Pomology to the Dominion Horticulturist. Mr. Davis is native of Yarmouth, Nova Scotia. He graduated from the Agricultural College Truro, N.S., in 1910, and after two years at Macdonald College, P.Q., graduated from that institution in 1912, receiving his degree of B.S.A. He then went to Bridgetown, N.S., where he remained until December 1st, 1913. While at Bridgetown he was manager of the Sunnyside Farm and Orchards. In 1912 he was elected secretary of the United Fruit Companies, and re-elected in 1913, resigning that office to come to Ottawa.

Death of Linus Woolverton

Linus Woolverton, M.A., passed away on May 7. As readers of The Canadian Horticulturist are well aware, the late Mr. Woolverton was one of the best posted and most prominent fruit growers in Canada. He was born in Grimsby, sixty-eight years ago, on the farm where he died, and where the first peach orchard in Canada was planted by his late father, Charles Woolverton.

Mr. Woolverton had spent practically his whole life in the fruit business, and his works on different subjects and phases of the business were widely sold and read. He was the author of "Fruits of Ontario," "The Apple Growers' Guide," and a number of other works. He edited The Canadian Horticulturist, and was secretary of the Ontario Fruit Growers' Association from 1886 to 1903, Inspector of the Ontario Fruit Experimental Association and secretary of the Board of Control from 1896 to 1906. In 1893 he was judge in pomology and Superintendent of Horticulture for the Dominion of Canada at the world's Fair in Chicago. Besides the foregoing he held many other important positions in the fruit associations and branches, and was a man whose opinion was always respected on any subject regarding fruit.

About two years ago he suffered from a slight stroke, and was ill for some time. The morning of the day he died he went down town as usual, but became unwell, and returned home at noon. Arriving there he became very ill, and passed away about five o'clock. He leaves a wife, one son, Charles Ernst of Grimsby, and one daughter, Mrs. (Rev.) Mode of Chicago.

Potato Diseases

There has been issued by the Department of Agriculture at Ottawa a well executed folder, Farmers' Circular No. 4, entitled "Potato Diseases Transmitted by the Use of Unsound Tubers," showing in natural colors, representations of specimens of diseased potatoes. Diseases and other blemishes represented are potato canker, powdery scab, hollow potato, internal brown streak, little potato disease, dry rot, wet rot, common potato scab, and stem and rot. Special reference is made to potato canker and powdery scab, the latter of which occurs already in Canada and should be carefully avoided.

The folder points out that, under the Destructive Insect and Pest Act of Canada any person using for seed potatoes infected by potato canker or powdery scab is liable to prosecution. Potato growers who suspect the presence of either of the latter diseases are requested to send specimens to the Dominion Botanist, Central Experimental Farm, Ottawa. This folder, prepared by Mr. H. T. Gussow, Dominion Botanist, will be sent free to those who apply for it to the Publications Branch of the Department of Agriculture at Ottawa.

Fruit Prospects

In Nova Scotia fruit trees have come through the winter in good condition, with no apparent injury to either buds or branches. The prospects are that an excellent apple crop will be harvested, inasmuch as the trees are well set with blossom buds. It has been reported that the conditions during last winter and this spring coincide almost exactly with those

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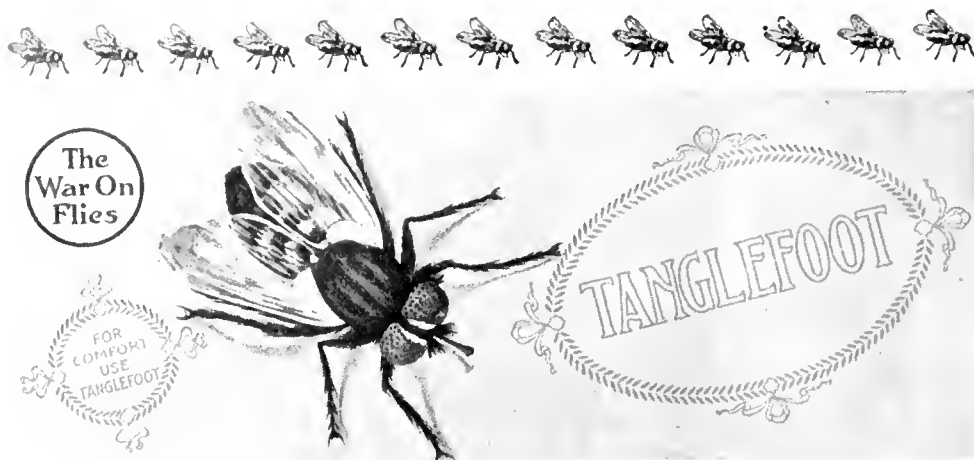
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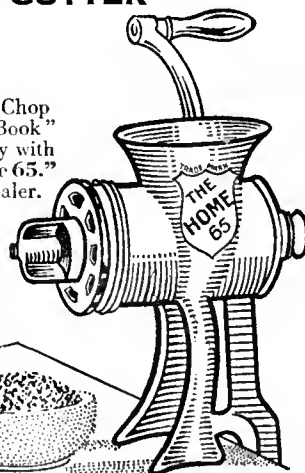
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13

which preceded the season of 1911, when the record crop of Nova Scotia was harvested. The weather still remains cool and the trees are somewhat late in coming out.

In Ontario conditions are generally favorable. The early winter was very mild, but during January and February severe cold weather was experienced throughout the province and a great deal of damage was done to the peach crop in the Niagara peninsula. All other varieties of fruit seem to have withstood injury and the buds have set for a good crop. There have been reports of a probable shortage in plums, particularly in western Ontario. It is not unlikely that such a condition will prevail inasmuch as the crop harvested last year was a particularly heavy one, and one which might almost be considered exceptional.

British Columbia reports a mild winter and practically no injury in any of the fruit sections. The spring has been one of the earliest experienced for many years. The general prospects are that a large crop of all varieties of fruit will be produced.—Fruit Division, Ottawa.

Fruit Imports into Glasgow

The great bulk of the fresh fruit imported into Glasgow consists of well-known varieties of apples from Canada and the United States. The Glasgow market supplies all consumers throughout Scotland and weekly shipments are forwarded regularly to fruit dealers throughout the north of Ireland and the north of England. The wide field that the Glasgow market is called upon to supply accounts largely for the remarkable expansion of the apple trade that has taken place in recent years. The approximate quantity that is imported annually is about 500,000 barrels.

North American apples are preferred in Great Britain to any others. The quality, the regularity of varieties, the sizes, and the nature of the packages are considered superior to any known in the old world.

Apples are consigned to Glasgow in barrels and in boxes. The standard barrel of Ontario, Canada, containing about one hundred and forty pounds of fruit, is the one most preferred. Next to that is the barrel used by the growers in Western New York. Following that comes the barrel from the New England States, then the Hudson River barrel, and lastly the Nova Scotia barrel, the least favorably regarded of all.

Apples in boxes containing about forty pounds of fruit have been received in the United Kingdom, especially in Glasgow for some years past, and have been greatly appreciated. The apples are regarded as the finest quality procurable, and sell accordingly. They come for the most part from Oregon, Washington and California, being carried across the continent and shipped at New York, Boston and occasionally Montreal. The business in these western box apples is well established, and the Panama Canal will doubtless be utilized in the trade when it is opened and when refrigerator ships are put on. If it is found that this effects economy in shipping, the business will be still further developed.

The prices of apples delivered vary accordingly to the nature of the season. British Columbia is the only serious competitor of the United States, and there is very little difference between Canadian values and those established in Oregon and Washington. Details of the apple trade are well understood here as it has been in existence many years.—Consular Report.

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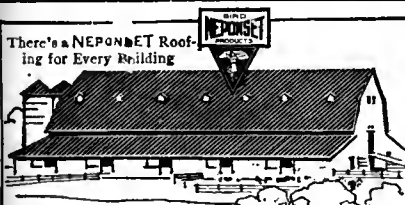


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Apple Trade Statistics

During the season of 1913, two million nine hundred and six thousand, four hundred barrels of apples were grown in the Dominion, according to statistics compiled by the Department of Trade and Commerce. Of this total, two million barrels were grown in the Province of Ontario, or over two-thirds of all the apples produced in the country.

Recently Canadian apples have been realizing very high prices in the British markets, and it was reported that in Glasgow, Ontario Baldwins set a wholesale price of two dollars and seventy-five cents a box, and seven dollars and ninety cents a barrel. During March at a public auction in Liverpool, fifty-three barrels of Number one Spies from an Ontario packer brought as high as eight dollars and fifty cents a barrel.

According to reports received from the Dominion Fruit Inspectors, the quantity of Ontario and Nova Scotia apples received west of the Great Lakes in 1913-14, was as follows: From Ontario one hundred and seventy-eight thousand eight hundred and thirty-two barrels; Nova Scotia, nineteen hundred and eighty barrels. In the Ontario estimate, twenty-one thousand, eight hundred boxes are included, compared with six thousand-five hundred boxes in 1912-13.

Eastern Annapolis Valley

Eunice Buchanan

The first aphides were found crawling on apple buds on May 8th, but there being so few or only one on a bud, they were hardly visible to the naked eye. However, an examination under the glass showed that the orchards were badly infested, but as aphides are very susceptible to changes of temperature things may not prove so bad as expected. We have had a cold, long spring, with frequent showers, which may check their development; should the temperature become warm and moist we may expect an enormous increase of the pest. The farmers are now on the alert and the United Fruit Companies have disposed of one thousand six hundred dollars' worth of "Black Leaf 40," and still have had to order more. Last year they handled only fifty dollars' worth. Young trees which were attacked by aphides last season are weak and lacking in fruit buds, where they have not been killed the growth has been arrested.

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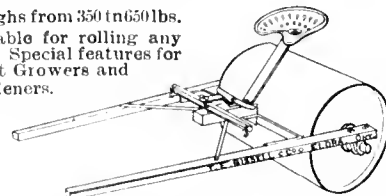
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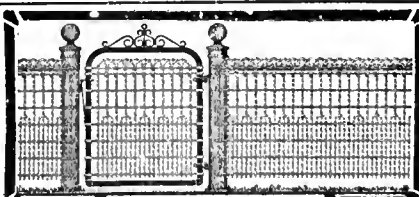
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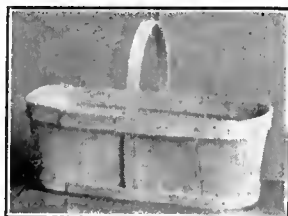
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ST. THOMAS, ONT.

Unlike most insects, the aphid is peculiar in giving birth to living young; it is not unusual to see a big aphid on an apple leaf surrounded by a brood of little ones, very much like an old hen. The number of young produced in a day varies, but it is said to be from eight to twenty-five; these in a few days go on producing other young, so that a chain letter when compared with the multiplication of aphides is insignificant.

Not only do the aphides reproduce viviparously, but also parthenogenetically, until the fall when the males appear as well as females; finally eggs are laid and the insects (in our cold climate) winter in this stage. The eggs are laid, as a rule, at the tips of twigs, so that when they hatch there will be a supply of food near to the young aphides where they may suck the juice in the buds and thus continue the cycle. After the first generation some of the creatures develop wings and fly to other orchards; in this way the pest quickly spreads. The eggs are very hard, and it is difficult to kill them with insecticides, but the adult insect is easily killed if its body can be covered sufficiently to stop its breathing pores (having a long beak of mosquito style, it cannot chew poisoned leaves)—now comes the big "if" again. If we can suffocate it, the increase is arrested, but this must be done before the leaves curl, otherwise it is almost impossible for the spray to find its way to them; so if we can kill the "stem-mother," as the first of the season is called—and persuade neighbors to do the same—the source of the trouble has gone.

Apart from sucking the juices of the plant, the aphid damages the foliage by covering it (thus closing pores) with honeydew, which they seem to produce for the benefit of ants. So if ants are noticed crawling up the trunk of an apple tree, look for aphids. Sometimes bees are tempted to collect this honeydew, which spoils the sample of honey. There are many families of aphides, but *Aphis mali* is the one which concerns us at present.

On May 12th we had a severe white frost, with ice on the water, and next day a few flakes of snow fell; on the morning of May 2nd the ground was white with snow, which was followed by rain. A few people spray in the first week of May, but generally farmers began about May 11th, using lime-sulphur and Black Leaf 40. The Government sprayer began work in experimental orchards in Berwick on May 13th.

Planting and seeding are late, and vegetation backward, but there is promise of a big blossom show in the orchards.

The islands of Bermuda have removed the embargo on Nova Scotian potatoes. While this only effects a few Nova Scotians, it makes a considerable difference to many Bermudians, as they supply particular varieties of tubers to the Maritime Provinces to be grown and returned to them for seeding. Ordinary potatoes are not sent to Bermuda.

Germany's Apple Imports

Reporting to the Department of Trade and Commerce, Ottawa, Canadian Trade Commissioner, C. F. Just, writes from Hamburg as follows, regarding imports of apples to Germany:

"The apple imports from Canada fell off fifty per cent. owing to the short crop in eastern Canada. The British Columbia fruit has not yet entered this market, although apples from the northwestern United States

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PETERBORO, ONT.

Peach Crop Injured

The reports, as published in The Canadian Horticulturist and elsewhere, that the peach crop of the Niagara District had been seriously injured by the cold weather last winter led Dominion Fruit Commissioner Johnson to send a representative to the Niagara District to investigate conditions. It was found that throughout the Niagara District the situation is a serious one. It is safe to predict that the crop of commercial peaches will be the lightest that has been harvested in twenty-five years. Following mild weather during December and the earlier part of January, the temperature dropped on January 13 and 14 between nine and eighteen degrees below zero, depending on the location, and was followed one month later by a similar period. The January frost was the cause of most of the injury, since a number of the buds had swollen during the previous six weeks. The cold spell in February also did damage. Throughout the Niagara peninsula the peach buds were badly injured.

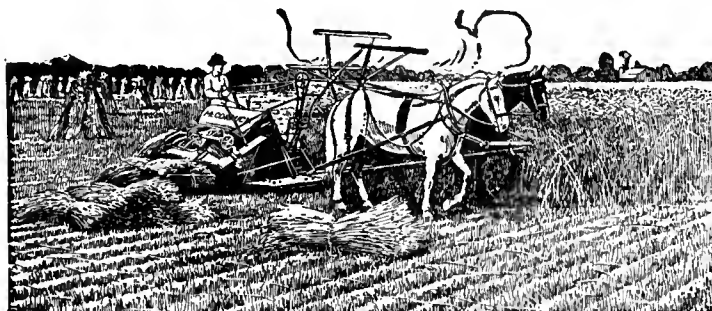
In some orchards not a live bud could be found, and where there were a few live buds they were on trees of no commercial value, trees which had been protected to some extent from frost by proximity to water. Along the shores of Lake Ontario, between Tonawanda and Jordan, there was a scattering of live buds on Triumphs and Longhursts. At Queenston on the Niagara River, a few buds were found on Englo's Mammoth and Triumph. In several orchards live buds of white flesh sorts were found, usually on the upper branches, and never more than a dozen on a tree. There is no section in which the injury was not great. Where good buds were seen at Queenston and at any other point in the peninsula, even there the number was so small that the amount of fruit produced will necessarily be very slight.

There are certain features that are worthy of consideration, inasmuch as they are the only ones upon which to base the probability that there will be a few peaches. The most important one is the development of retarded fruit buds. A comparatively large number of very small buds were found at several points throughout the district. These, on account of their size, were so greatly affected by the extreme variations in temperature. At the time of inspection they were still small, but there was some likelihood that a percentage of them will later develop and blossom, in that they do not show the dark centre which is characteristic of the larger and frozen buds.

In the second place, there are many orchards which are within a very short distance of either Lake Ontario or the Niagara River, and on account of the protection which they received from frost through the equable temperature, were found to have a scattering of live buds. Only a few of these orchards were examined, and the conditions found in them must apply to other orchards in which conditions may be as good or even better than in those inspected.

Thirdly, it was noted that in cases where buds had survived the winter, they were more often located in the upper branches of the tree than in the lower branches. The tendency of frost is to settle, and in some cases a difference of from three to five degrees in temperature is not between the ground level and a point fifty feet higher. It is possible, then, that

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many growers, making a hurried inspection of their orchards, would overlook the unproductive branches and presume from an inspection of only the lower ones that the crop was an entire failure.

OTHER DISTRICTS

The injury in Lambton county has been so great as in the Niagara District although here, too, the crop has been reduced by frost. The white flesh varieties and Smocks have a fair percentage of buds. Commercial varieties have not shown a good showing, but the feature noticeable is that buds on lower branches were severely injured than upper ones—was particularly noticeable here. The crop in Lambton county is never a large one, comparatively—and this year will be materially lessened. The fact that the injury was not so serious as in the Niagara District may be credited to the fact that the county escaped the severity of the January frost and was only affected to any serious extent by the later one in February. Consequently, many of the hardier buds escaped injury, and on the varieties mentioned the indications are that a fair crop will be harvested and that even on the more commercial sorts the crop will not be a complete failure.

In the Essex peninsula the prospects are that a full crop of all varieties will be produced. In some instances, the fruit will have to be thinned. The entire southern western portion of Ontario seems to have escaped the worst of the cold weather, the lowest temperature recorded in Renfrew (Essex) was four degrees below zero. The contrast between that section and the Niagara peninsula is a great one, prices to the growers will be high. There is still some danger to be expected from late spring frost, but once that is past the growers may feel assured of a crop as large as any harvested in previous years. It must be remembered that the acreage under peaches is yet a small one. Planting is being extensively done, and within a few years the Essex peach crop will have an appreciable effect upon the market. Even this year, in spite of the comparatively small number of Essex orchards in bearing, and in view of the scarcity of fruit in Niagara, the crop will make a perceptible impression.

A short visit was made to Simcoe, Norfolk county. Very few peach orchards have reached a bearing age, and on the buds are practically all killed. For heavy plantings are being made.

Items of Interest

In British Columbia Provincial Horticulturist R. M. Winslow, after a trip of inspection through orchards in all sections of the Okanagan Valley, from Penticton north reports that no sign of damage to trees was found. A record breaking crop is promised for both apples and soft fruit.

While in Calgary recently Mr. T. W. Macoun, Dominion Horticulturist, expressed surprise that so few people in southern Alberta were growing vegetables and fruits. Experiments conducted at the Experimental Farm at Lethbridge, show that fruit can be grown successfully. Vegetables also be grown to advantage. "The farmer," said Mr. Macoun, "who will grow fruit and vegetables under the trees will make a large fortune as the one who grows wheat, and wheat only."

have been arriving regularly in large quantities for some years, and are a fully established market.

"The value of the imports of dried apples and apple waste is given at 10,619,000 marks for a quantity of fourteen thousand seven hundred and forty-eight metric tons, almost the whole of which is credited to the United States. Canada's shipments to Germany are known to have been on a considerable scale in 1913, certainly not less than one thousand tons, and these are undoubtedly included in the receipts credited to the United States, the Canadian article being generally shipped through American ports. The German market for good qualities of this article is increasing."

Bird and Insect Life

Editor, The Canadian Horticulturist,—Will not you through the columns of The Canadian Horticulturist, call attention to the economic value of the birds, bees, and butterflies to tree and plant life? Even the despised British sparrow is the best "fly-swatter" we possess, frequenting, as it does, the manure heaps and garbage piles, just where the house fly loves to breed.

Could all your readers not place in their gardens a hollow pan of water for the birds, thus preventing them from attacking fruit, as it is thirst which drives them to the latter. If fruit growers, instead of killing robins and blackbirds (which, by the way, is against the law, except for fruit growers during the ripe fruit season), would plant mulberry trees in a corner of their orchard the birds will flock to them and leave other fruit alone.

R. BRIERLEY,
Manager, Elgin Humane Society,
St. Thomas, Ont.

Powdery Scab of Potatoes

Some time ago it was found that there existed in the eastern provinces of Canada, viz., Prince Edward Island, Nova Scotia, New Brunswick, and Quebec, a disease of the potato tuber known as Corky or better, Powdery Scab, which had probably been present, at least in some localities, for a number of years, but not distinguished from the disease known as Common Scab.

While this disease, under Canadian conditions, has so far only in one instance given indications of being more destructive than Common Scab, it is nevertheless a very undesirable malady to have permanently established in potato growing land. As a result of the discovery of Powdery Scab, the United States authorities, through fear of introducing the disease, have enacted that potatoes shall not enter the United States except under a rigorous system of certification, which includes a certificate to the Potato Canker or Powdery Scab exists. If the export with the United States is to be regained in face of the existing regulations the methods directed towards the eradication of the disease must be followed intelligently and in a thorough spirit of cooperation.

In order to familiarize the farmers of Canada with this disease, Mr. J. W. Eastham, Chief Assistant Botanist of the Central Experimental Farm, has prepared a comprehensive circular entitled "Powdery Scab of Potatoes," which is Farmers' Circular No. 5 of the Division of Botany, and is available to all who make application for it to the Publications Branch of the Department of Agriculture, Ottawa. The nature, symptoms, and preventive methods are fully outlined, and the following sum-

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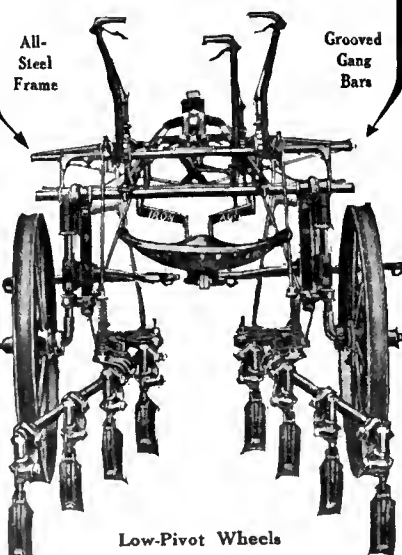
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many of recommendations for control of Powdery Scab are given:

Use only "seed" from a crop free from the disease.

Disinfect such "seed" to destroy any stray disease germs.

Use land known to be free from the disease. In most areas this will have to be land not previously planted to potatoes.

Do not plant potatoes again in land which has shown the disease. If possible, seed such land down to grass.

Isolate the crop from any field showing the disease, and take all possible precautions to avoid the spores from this crop scattered where they infect other potatoes.

Pay special attention to the cleaning, and, if necessary, disinfection of implements which may carry the disease.

The Fruit Trade with South Africa

Reporting from South Africa to the Department of Trade and Commerce, Trade Commissioner W. J. Egan, stationed at Cape Town, writes as follows in regard to Canadian apples shipped to that market last fall:

Opinion among the various dealers varies in reference to Canadian apples received in South Africa this year. Durban dealers report grading and packing of Nova Scotia fruit to be all right in every particular. They complain, however, that Nova Scotian Kings and Wagners on the whole were a great disappointment, as they were poor in color and in keeping qualities. The Ontario fruit, such as Ben Davis, Kings, Russets, and Spies left nothing to be desired.

Port Elizabeth dealers were well satisfied with consignments to them, but state that they did not receive all they had arranged for, one large dealer claiming that although he booked space early last May, he failed to secure accommodation for his second shipment.

A SPLENDID MARKET

The apples which arrived in Cape Town were, with the exception of one lot of Golden Russets on the s.s. Benguela, in very good condition, but were not graded in all cases as they should be for export. The difference in grading of apples received in Cape Town and other ports must be attributed to the fact that almost all the apples shipped to this port are purchased by local dealers, who visit Canada annually, while the fruit to other ports is consigned by Canadian producers or dealers.

The South African market during October, November, and December is a splendid one for good Canadian apples, and will command high prices. This office invites early correspondence this year with a view of consignments for next year and advise the securing of space in cold storage chambers early in the season.

Items of Interests

The 1914 fruit exporting season in Australia is now in full operation and will continue for over two months hence. The total shipments from Melbourne for Europe this season are approximately 183,634 cases of apples, pears, etc., against 240,529 cases for the corresponding portion of the 1913 season. From Hobart, total shipments to all ports outside of Australia are approximately equal to 156,145 cases, as compared with 298,360 cases during the same portion of last season. Adelaide shipments are equal to about 47,030 cases, against 24,980 cases last season.

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FREE TRIAL. No money advance—No bank deposit. Don't let blight, scab, rot or bugs eat your yield in half. Hurst Spray. ers pay for themselves in Extra Profit. Man and Horse Power—high pressure—cyclone agitation. Brass ball valves, plungers, cylinder and strainer. No leather or rubber to cause trouble. Guaranteed 5 years. We pay freight. Write today for catalog, spraying guide and our Special Free Sprayer Offer.
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Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 30 cents, strictly cash in advance.

ALL KINDS OF FARMS—Fruit farms a specialty.
—W. B. Calder, Grimsby.

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IF YOU WANT to buy a farm consult me.
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H. W. Dawson, Ninety Colborne St., Toronto.

SALMON ARM. Shusway Lake, B.C., has the finest fruit and dairy land in B.C. No irrigation necessary: mild winters, moderate summers, no blizzards or high winds; delightful climate; enormous yields of fruit, vegetables and hay; good fishing; fine boating amidst the most beautiful scenery, and the Salmon Arm fruit has realized 25 cents per box more than other fruit in B.C. Prices of land moderate, and terms to suit. Apply to F. C. Haydock, Salmon Arm, B.C.

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WANTED—Prime swarms; hives furnished. Address Box 18, The Canadian Horticulturist and Beekeeper, Peterboro, Ont.

BEZZO'S FAMOUS PRIZE ASTERS—Read particulars on page 168.

BARGAIN—Greenhouse, Residence and Stock; no competition; live village, 30 miles from Buffalo, excellent shipping facilities. Write Ellis Bros., Springville, N. Y.

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The Canadian Horticulturist

Vol. XXXVII

JULY, 1914

No. 7

Cover Crops for the Orchard

By J. E. Smith, B. S. A.

A FEW years ago the idea of a cover crop in the orchard was comparatively new to most farmers. For a decade or more a good tough blue grass sod was considered about all that was necessary under the apple trees. One would get apples anyhow, whether the ground received any care or not. This may have been quite true in the earlier days when our soils were richer, and we had a greater rainfall, and the country was less windswept so that the orchard always held a good coating of snow during the winter.

But the day is past when farmers are persuaded that they can raise two good crops on the same piece of ground at the same time. The soil may be rich enough, but the smaller amount of moisture available must result in both crops being stunted. It is impossible to raise a good crop of apples, and a hay or grain crop on the same piece of ground except in cases where we have a wet summer season or the subsoil is particularly moist. Those who have kept close to the apple growing business will readily note the dry texture of the apple grown where the orchard is in sod or grain, and the luscious, juicy texture of the one grown under proper cultivation.

In the mixed farming districts of Ontario where practically no care is yet given to the orchard, the amount of growth of the trees per season is, in many cases, less than half of that in orchards that are well cultivated and pruned. This largely marks the difference between those stunted, thick, close-headed trees that are so common everywhere over Ontario, and those vigorous, clean-barked, big-foliaged orchards that are to be found in our apple districts. The one is the product of neglect—the other that of intelligent care.

The cover crop has a five-fold purpose in the orchard. The clean cultivation of April, May and June allows the tree to forge ahead at a rapid rate, but the growth of the cover crop a little later has the same effect as dry weather, for by drawing the moisture from the soil, and thus from the roots of the tree, it checks excessive or late growth, and in this manner the wood is more fully ripened. This is of supreme importance in

view of the severe winter killing of apple trees during the past few winters. This reduction of soil moisture is of much importance farther north in securing a better color in the fruit.

Again, the cover crop is one of the cheapest means of adding humus, one of the essentials both of our light and our heavy soils. On the light soils, especially the sands of Southern Ontario, this humus is absolutely necessary. On the clay soils, the plowing under of a cover crop is much the same as the application of manure, making the soil much more friable. At the same time the roots of a cover crop hold much plant food, which would otherwise leach away, while the roots of the trees lie dormant. On rolling land it prevents washing, and in exposed districts and in districts of light snowfall, it holds the covering much better than a clean sod, or soil on which there is no plant growth at all.

COVER CROPS PROTECT

Peach trees killed by root freezing during the past few years have largely been those with no cover crop or other protection to hold the snow about their roots. Moreover, the cover crop forms a clean mat in the orchard for the handling of the fruit in the fall.

Cover crops are of two kinds—the

leguminous and non-leguminous. The former are those with the power of gathering nitrogen from the air, and storing it in the little knots on the roots. The leguminous crops used for this purpose are clovers (such as mammoth, red and crimson), cow peas, common field peas and hairy vetch. As nitrogen is the great energizer of plant life a legume should be used where trees lack vigor and vitality. Rye, buckwheat, rape, and oats are the chief non-leguminous ones used in the orchard.

CROP SELECTED

As to what cover crop one should sow depends upon a great many different conditions, such as the age of the trees, the nature of the soil, and the location in the province. Fruit growers who for the first time have broken up the sod under their old trees will find that one of the legumes will give them the best results in stimulating renewed youth in the old trees. In a richer soil where a heavy pruning has been given any of the other cover crops can be used to good advantage, the main point being that whatever is used, it should make a fairly rapid growth during the summer months to take up the excess of moisture, leave the orchard with a clean mat for handling the fruit in the fall, and at the same



Intercropping with Factory Beans in Young Orchard of S. Souden, Simcoe, Ont.



Intercropping with Tomatoes in Orchard of Frank Shearer, Vittoria, Ont.

time give protection by holding the snow in the winter. Where mature trees are clean and vigorous the use of too much of the legumes in the cover crop tends to give an over-production of wood growth. Old trees that have been heavily pruned will invariably throw a great number of suckers the same season. The use of a heavy cover crop will go a long way in checking the growth of these after the summer pruning is done at the end of June or in July.

USE OF CLOVER

In the younger orchards clovers are used to a great extent in shoving forward the young trees. By the use of a clean cultivation followed by an enriching cover crop, together with proper pruning at the right season, many fruit growers tell us they bring their trees into bearing several years earlier than otherwise. Jas. E. Johnson, manager of the Norfolk Fruit Growers' Association, has demonstrated that by skilful orcharding he can bring spy trees into bearing at ten or twelve years of age.

Of course many fruit growers are not satisfied to use cover crops in the young growing orchard. By liberal manuring and judicious inter-cropping many of the best fruit growers are securing large returns per acre, even while the young orchard was coming into maturity. Mr. Samuel Soudan, of Simcoe (a cut of whose young orchard appears herewith), secured a net return of sixty-six dollars per acre by intercropping with canning beans. Similar good results can be secured with strawberries, potatoes, tomatoes, or in fact any crop which will allow of much cultivation, and which does not pull heavily upon the soil moisture in the early part of the season. Many instances are known of where wideawake young fruit growers have paid for their land while the fruit trees were coming into bearing.

During the past few years the following cover crops or combination of cover crops were tried out in Norfolk county, and found to give good results:

First—Peas, one and one-half bushels per acre. This should be sown from the first to the twentieth of June to secure a good growth, as they freeze down with the first frost. They cannot be recommended for the northern part of the province.

Second—Buckwheat two pecks, and hairy vetch twenty-five to thirty pounds. This makes a good combination of a legume and a cereal. The buckwheat makes the rapid growth the first season, while the hairy vetch will make considerable growth in the spring, before being turned under. Some orchard growers object to the use of buckwheat, as the heavy growth in the fall is rather objectionable in harvesting the apple crop.

Third—Rye one-half bushel, and red clover twelve pounds.

Fourth—Rye one-half bushel, and hairy vetch twenty-five to thirty pounds.

Numbers three and four are probably the most popular cover crops in the province to-day, and form one of the best mats for the winter season, while at the same time combining both the legume and the cereal.

Fifth—Rye, one and one quarter bushels. As a single, separate cover crop it is used largely where the soil is not at all rich.

Sixth—Rape, three to five pounds. It is not considered a good cover crop, but many farmers sow it in the older orchards and hog it down later in the fall.

Seventh—Red clover, eighteen pounds.

Eighth—Peas and oats mixed, two bushels. This latter is not used to any extent as a cover crop, but should be a good one in that it gives a rapid growth

right after planting, and forms a good mat to hold the snow. One objection to it is that there is little or no growth from it in the spring. Many orchard growers like a cover crop that will start up again in the spring, and give considerable growth before being plowed down.

Cover crops for southern Ontario as a rule should be sown between July first and August first. For central Ontario the date of sowing should be a couple of weeks earlier. Later sowings give only short growth before winter.

Orchard growers in general should make it a point to have their orchard ground in the very best of condition previous to sowing the cover crop, in order that a good stand may be secured and a heavy growth made as early as possible. In a few orchards of which I know, mouse-eared chickweed grows so rapidly that it is only necessary to stop cultivation in order to have a good cover crop of this weed come on. In another orchard in Norfolk county the soil is so moist that it is kept in sod the whole year round, yet the fruit shows plenty of size, and takes on an excellent color. A few orchard growers in Ontario never make use of a cover crop at all, using clean cultivation the whole season through. About the end of June they heavily roll the land, which causes it to dry out in much the same way as a cover crop would suck away the moisture.

Of course the greatest good cannot be secured from any cover crop, unless the other care of the orchard, such as pruning and spraying receives every attention.

Marketing the Cherry Crop*

It is when the cherries are ripe for picking that the cherry grower's worries often begin. Poor marketing methods may result in the wiping out of the profits that should result from the work of a year or perhaps several years.

Care should be exercised in picking. The stem must be left on each cherry intended for shipment otherwise the juice would spoil the whole package. If picked for the canning factory or for immediate use, this precaution is not necessary.

PREPARING TO ATTRACT THE TRADE

Shipments are made in eleven quart and in six quart baskets, principally the former. The purchase of the baskets is a serious item of expense. We fill each basket full of carefully selected cherries, then the stems of the top layer are turned under—making a great improvement in the appearance of the package. A sprig of green leaves is also placed on the

*An article prepared some months ago for The Canadian Horticulturist by the late W. B. Leavens, Prince Edward Co., who had one of the largest cherry orchards in this province.

fruit; then the cover is put in place and kept there by use of six fasteners. These fasteners hold the baskets firmly together also. An attractive, oval-shaped, bright-red label is put on the end of each basket, announcing that these cherries are from the "Leavens Orchards," of Prince Edward Co. This label serves as a modest advertisement for our fruit, and a guarantee to the purchaser that the contents of the package are what he paid for.

After the orchardist has invested his money in trees and land, has cultivated, pruned and sprayed for a number of years without returns, and he at last has a crop which he thinks will reward him for his trouble, he comes face to face with the proposition which brings failure or success to his venture. His problem is to get sufficient of the consumer's dollars to have a margin of profit on his investment.

Profits from an Apple Orchard*

WHAT returns may be expected from an apple orchard? Whether a definite answer can be given is a debatable question, but a very close approach is the statement of ten years' profits from Auchter orchard near Rochester, N.Y. The experiment was conducted by the Geneva Experiment Station. In a ten-year period any unusual conditions which might arise in a single season would be lost sight of in the general average.

The trees are Baldwins, now thirty seven years old, just entering their prime. For the whole period the average yield per acre was 116 barrels, of which seventy-nine were barrelled stock and thirty-seven evaporator and cider stock. The latter was unusually high because of two heavy windstorms, yet these are to be expected. Reduced to a tree basis the average yield was 4.33 barrels total, 2.93 barrels barrelled stock, and 1.4 barrels evaporator.

INTEREST ON INVESTMENT

Interest on investment is a difficult factor to arrive at. In this case the orchard was valued at \$500 an acre, which at five per cent. is twenty-five dollars an acre or twenty-one cents a barrel for 116 barrels.

Taxes were rated at \$1.50 an acre or 1.2 cents a barrel.

No charge was made for depreciation of outfit, but the orchard was debited with cost of work and workmen which the Station hired. For the average orchard the items would probably be Team, \$400; spraying outfit, \$250; harness, \$50; waggon, \$75; other equipment, \$225; total, \$1,000. At twenty per cent. for depreciation and interest,

I cannot answer the question of direct shipment to the consumer satisfactorily. In a small way one can sell direct to the consumer but with any considerable quantity of perishable fruit, like the cherry, some other means of marketing must be employed. Consumers might help themselves sometimes by clubbing their orders and sending direct to the farm for supplies.

Edison says that it requires fully as much genius to make money out of an article after it is invented as it does to invent it. The same is applicable to fruit production. When we can sell direct to the retailer, in my opinion we are getting as close to the man who eats the fruit as we may reasonably expect, there being then only two bites out of the cherry between the orchard and the table, those of the express companies that convey, and the shop keeper who distributes.

seventeen cents a barrel would need to be added to the cost.

The annual cost of tillage was \$7.39, an acre, equal to 6.3 cents a barrel. The orchard was plowed each spring, rolled and then harrowed an average of seven times each season. Teaming was hired at \$4.50 a day. The cover crop was usually red clover, the seed of which cost \$2.74 an acre or 2.3 cents a barrel.

Pruning was done at a cost of \$3.56 a year per acre—equal to 13.1 cents a tree or three cents a barrel of apples. The wages paid for labor was two dollars a day of ten hours.

The Station paid three hundred dollars a year for superintendence of the work.

This is equal to thirty dollars an acre, \$1.10 a tree, and twenty-five cents a barrel.

The apples were sorted and packed in the field, then hauled one and one-half miles over a country road to the station. For these operations 24.4 cents a barrel was allowed. Barrels were purchased at an average price of thirty six cents.

COST OF BARREL OF APPLES

From the foregoing data the cost of a barrel of apples at the shipping point is compiled as follows:

Interest on investment	\$0.21
Taxes .....	.012
Tilling .....	.063
Pruning .....	.03
Spraying .....	.096
Cover crop .....	.023
Superintending orchard ....	.25
Picking, packing, hauling...	.244
Cost of barrel .....	.36

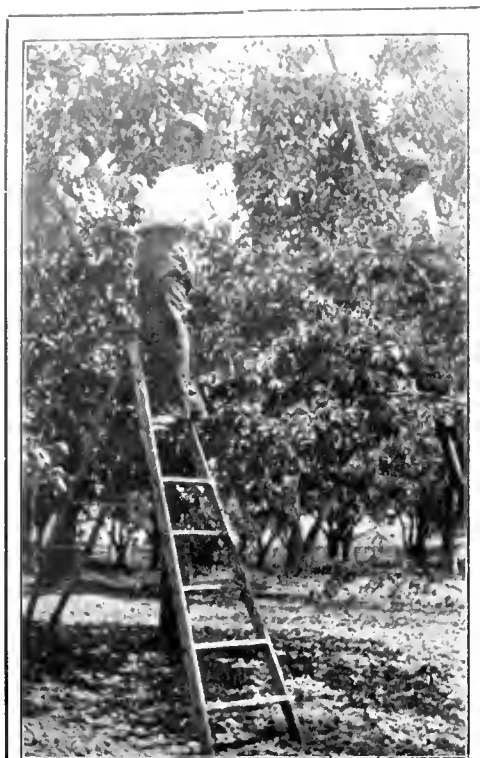
Total\$1.29

During the ten years the average price received for barrelled stock, which includes firsts and seconds, was \$2.60. For evaporator and cider stock seventy-two cents was received. Subtracting \$1.29, the cost of production, from \$2.60, the selling price, there remains a profit of \$1.31 a barrel for firsts and seconds. Multiplying by seventy-nine the number of barrels an acre, there was a net profit of \$103.49 an acre for barrelled stock. No barrels were required for the evaporator stock, which cost ninety-three cents a barrel. As these sold at seventy-two cents a barrel, there was a net loss of twenty-one cents on each of the thirty-seven barrels, or \$7.80



Sorting and Packing Cherries at Hillcrest Orchards, Kentville, N. S.

*Summary of a bulletin by U. P. Hedrick, of the Geneva Experiment Station, N.Y.



Thinning in Nicholl Orchard, Welcome, Ont.

an acre. The average net profit then was \$95.60 an acre for ten years. Adding to this the twenty-five dollars an acre charge for interest on investment, the actual annual dividend has been \$120.60 an acre, or 24.12 per cent on \$500.

The author of the bulletin from which this summary is taken states as his opinion that the profit is greater than the average orchardist receives, but it is not abnormal for a well cared for orchard.

Cultivating the Young Orchard

B. H. C. Blanchard, Hants Co., N.S.

Too much stress cannot be laid upon the importance of cultivating the young, growing orchard. In most young orchards intercropping is practised. If the crop be a hoed crop or small fruits, the orchard trees probably get their share of cultivation, but if the intercrop be grain or hay such is not always the case.

Not many orchardists allow a crop of hay or grain to grow up close to the trees; a space of several feet is usually left clear on each side of the rows, but not a few neglect to cultivate this uncropped area. In our own orchard more than a year ago we were treated to an object lesson of the value of cultivation.

This orchard was planted three years ago. Each tree received a dressing of farmyard manure at planting time. In spite of a dry season the loss was less than three per cent. Between the trees were turnips and mangels; adjoining was a field of grain seeded down. The orchard received cultivation during the

summer, and in the fall we applied another dressing of manure.

The next year we intercropped with strawberries, potatoes and mangels and cultivated as before. The row next to the hay field was an exception. This row was cultivated on the side next to the root crop, but the hay was allowed to grow close up to the trees on the other side. As the season advanced it became evident that this particular row was not making the same growth that the others were. The leaves had less color and the trees as a lot had a less thrifty appearance.

Aside from cultivation all the trees received the same treatment. During the

summer they received an application of ammonium sulphate. To us the condition of these trees was ample proof that a growing orchard should not be expected to flourish when proper cultivation is lacking or when it is obliged to dispute with a crop of hay for its food supply.

Cultivation late in the season is not advisable, as the growth made may not mature early enough and injury result. But during the summer growing season cultivation is essential to place the plant food in the most available form and conserve soil moisture. It is false economy to give the young orchard anything but the very best attention.

The Why of Summer Pruning

F. W. Brady, Canning, N. S.

THE object of summer pruning is to increase the number of fruit spurs and fruit buds. A common fault with much of the pruning of young trees that is done is that all the suckers are cut off, leaving a long bare stem.

This is bad practice for two reasons. First, there are no fruit spurs on the lower parts of the limbs and consequently the area upon which the tree can bear fruit is limited to a portion of the outer end of the branches. Second, the leverage produced by the fruit being at the end of the branches is so great that they either lie on the ground and the fruit becomes soiled or else they break because of the load.

WINTER PRUNING AN AID

It is often possible to correct this fault by cutting back severely in the winter or early spring. This forces adventitious buds or causes those that have been dormant to grow. When a good growth of water sprouts, or suckers as they are sometimes called, has been obtained in this way they may be pinched back. Thus fruit spurs will be produced upon the limbs near the trunk, which is the proper place for them.

The time for summer pruning depends upon the climate and period of growth. Pruning in June will not be effective if there is a period of growth after the summer dry spell. Instead of fruit spurs many branches will be formed on the limbs. Under such conditions pruning must be done later. If, however, the season of growth ends in June, pruning in the latter part of that month is usually effective.

DEPENDS ON FOOD SUPPLY

The physiology of summer pruning is a matter of food supply. The food that is being prepared for the buds of next year would naturally pass on to the leaves. But as the terminal leaves of a pinched stem have been removed, the food is stored at the end of the stem.

Thus at this point a strong fruit bud is usually secured. As a fruit bud is only a better fed leaf bud the reason is at once apparent. I might state that four years' experience in British Columbia had convinced me that the western man is more keenly alive to this fact than is his eastern brother.

The method just outlined is intended for young trees. For old stock a simpler plan may be adopted—pinching back late in the growing season. The food will be stored in the remaining wood and the growth of fruit buds encouraged.

The larva of the Lesser Peach Borer looks like that of the ordinary Peach Borer and the adult also resembles it, but the female has not the orange band around the abdomen. The life history of both insects is very similar. The main difference is that the Lesser Peach Borer attacks chiefly above ground, including the larger branches as well as the trunk. It regularly enters only where there has been a wound. This suggests that the proper means of control is to dig out the larvae when present, and endeavor by careful pruning and orchard practice to have as few wounds on the trees as possible. Where wounds are made they should, so far as practicable, be cleaned out with a knife and painted with white paint diluted with linseed oil. This insect as a rule is not very common. It attacks cherry and plum trees, as well as peaches.—Prof. L. Caesar Provincial Entomologist, Ontario.

Many of our best varieties of strawberries have pistillate or imperfect flowers, and one must be careful to provide staminate or perfect-flowering varieties close to them. The beds of staminate and pistillate varieties could alternate; that is, five rows of one, then the path, and five rows of the other.—W. A. Dier, Ottawa, Ont.

Some Impressions of a St. Catharines Garden

ST. CATHARINES is a city that can boast of many fine gardens and lawns. Situated as it is in the heart of the best tender fruit district of Canada, one might expect to find, and does find, gardening brought to a high state of perfection.

Probably the most extensive and in many respects the finest garden in the city, is that of Dr. Merritt of Rodman Hall. Last summer a representative of The Canadian Horticulturist had an opportunity to visit and admire the Rodman Hall gardens. The training that Mr. S. Clark, the gardener, has received in the Old Land is evidenced in the careful cultivation and attention which the grounds receive at his hands. At the 1913 St. Catharines Fruit and Flower Show fourteen firsts were awarded to the products of the Rodman Hall gardens. These included a collection of ten foliage plants, six foreign ferns (among which was a finebird's nest fern and also a stag's horn), adiantums, dracenas, begonias, and collections of annuals.

NATURAL ADVANTAGES

The grounds are admirably adapted for a residence and when originally laid out full opportunity was taken of the natural advantages. Extending to one side and back of the house are four acres of lawn and garden. From the flower garden one obtains a magnificent view overlooking the Twelve Mile Creek.

The lawn proper is about two acres in extent. Among the trees are some fine specimens of tulip tree, catalpa and paulonia. Directly behind the house is a smaller expanse of lawn. Extending beyond and to one side of the latter is the flower garden. From the house a walk winds among the beds which contain some of the finest examples of bedding to be found in the city—sub-tropical bedding, carpet bedding and the more general run of carpet schemes.

THE KITCHEN GARDEN

From the flower garden we passed through an archway in the neatly trimmed privet hedge, which surrounds the vegetable garden at the rear. This kitchen garden of one and a half acres, is laid out in English style. It is a splendid example of intensive cultivation as the ground is cropped twice each season. Extending through the centre of the garden is the main walk which is edged on either side by an herbaceous border. The other walks are edged with the old fashioned box hedge.

All the herbaceous plants are in the two borders mentioned which are one hundred and twenty-five yards long. A plant being tested out is the Montbretia. Its hardiness is being ascertained, and should it prove resistant the Montbretia

will be a valuable acquisition. At the corners of some of the beds pyramid trained pear trees effect a relief.

TOMATOES A SPECIALTY

A specialty is made of tomatoes, which are trained on trellises. About one hundred and fifty plants, giving half a ton of fruit, are grown each year. Onions are another specialty. This season an exceptionally good crop of peas was raised. Sutton's Excelsior proved the most satisfactory variety. Some fine English gooseberries also figure in the selection.

An interesting novelty was a tomato-potato combination. A tomato stem was grafted on a potato plant. The former bore several trusses of fine tomatoes, while the roots of the latter produced a number of fine tubers. We believe the practice is fairly common among French gardeners. The fact that both plants belong to the nightshade family accounts

for the readiness with which they may be grafted.

THE GREENHOUSES

In the kitchen garden are three greenhouses, each one hundred by twenty feet, which are devoted to the culture of ferns, foliage and flowering plants. Recently more attention has been paid to the growing of roses. Two smaller houses are utilized during early spring for the growing of bedding stock and in the summer for the production of English cucumbers. These houses produced the cucumbers that won first prize at Ottawa last year.

Grapes are grown under glass in two graperies, each thirty feet long. From these houses come the grapes which were so well commented upon at the Canadian National Exhibition last year, and which were judged by some to be the finest ever shown at Toronto. At the St. Catharines show fruit from these graperies was first in its class.—B.H.C.B.

Preparations for the Perennial Border

H. Gibson, Tuxedo Park

THE latter half of July is a suitable time to sow seeds of any plants that are required for planting to permanent quarters, the latter part of September. A shady corner containing good earth or a cold frame is the best place in which to sow the seed. The soil should be of a friable nature and worked up finely. Sowing in drills is preferable to broadcasting the seed, as the different varieties are less likely to get mixed.

Draw the drills an inch deep, and sow as evenly and thinly as possible. Thick sowing tends to overcrowding at an early stage. Cover the seed with fine earth, and then water with a fine rose on the watering can. Care should be taken to label each variety correctly so as to avoid future disappointment and delay.

During the hot, dry days some shade from the direct rays of the sun will be necessary to prevent too rapid evaporation.



The Residence and Lawn, Rodman Hall, St. Catharines, Ont.



Walk with Herbaceous Border through Vegetable Garden, Rodman Hall

ation. This can easily be accomplished where a cold frame has been used by making an awning of cheese cloth or mosquito netting. A similar arrangement may be devised where the seeds have been sown in an open border.

When the seedlings are large enough to handle they should be transplanted three or four inches apart into nursery beds. With good cultivation they will

grow into desirable specimens for permanent planting.

It is essential that grouping or massing of individual varieties be practised when planting into permanent quarters. A group of plants of definite form, habit and color are far more effective and pleasing to the eye than an indiscriminate planting of miscellaneous varieties.

Rochester, the City of Parks

THE recent trip of the St. Thomas horticulturists to Rochester, was one of much interest, the visitors seeing much, thanks to the courtesy of the Rochester officials.

On Sunday, May 24th, the party was taken in tow at Highland Park, alternately by A. B. Lamberton, superintendent of parks; J. Dunbar, assistant superintendent, and C. Sullivan, the manager of Highland Park. Standing on the brow of the hill one has a good view of the magnificent collection of lilacs, of which there are two hundred and eighty-six varieties, the name of each variety being painted on a sign at the foot of the plant.

Great beds of tulips proudly held blossoms up high as the visitors passed by. The party were informed that this had not been a good year for tulips as three-fourths of some varieties were "blind," the complaint being general over an area of hundreds of miles.

There were many beds of different kinds of azaleas, four hundred varieties of peonies, many varieties of rhododendrons, some of them very rare; magnolias by the hundred, some fine pansy beds, one of them sixty by fifteen feet. The conservatory contains hundreds of tropical and semi-tropical plants.

Highland Park also includes Hemlock reservoir, which furnishes the city water supply. In the centre of the reservoir can be seen a fountain throwing the crystal water to a height of about twenty feet.

A movement is now under consideration to find means to purchase a few of the most important shrubs seen at Highland Park, which will be the beginning of a scheme to make St. Thomas a miniature Rochester.

On Monday the local party were joined by sixty members of the St. Catharines Horticultural Society, marshalled by Ald. W. B. Burgoyne, proprietor of the St. Catharines Standard, and Thos. J. Holden, city editor of the same paper. They were eager to see everything pertaining to horticulture.

The Durand-Eastman Park of four hundred and eighty-four acres, is one of the latest of Rochester's breathing places. Deer and other wild animals have been placed in this park. It extends along the shore of Lake Ontario for nearly a mile. The next place of interest was Maplewood Park. In it there is a beautiful grove in which is a fully equipped playground and a handsome bandstand. Seneca Park of two hundred and eleven acres, was the next spot visited. This park has an extensive zoo, a children's

playground, a swimming hole, and a baseball diamond.

In addition to the parks mentioned here there are twenty small parks varying in size from a thousand square feet to fifteen acres. There was not enough time left at the disposal of the party to visit the beautiful Genesee Valley Park of five hundred and thirty-six acres, where the annual water carnival is held.

The city spends \$190,000 per annum on parks and \$11,000 a year on municipal music.

Rev. Father West, who was an interested visitor, remarked that living in such beautiful surroundings has a most pronounced influence over the morals of the people and that the effect of the horticultural splendor could be noted in those with whom they came in contact. Cities are measured to-day more than ever before by the happiness of the people, and that city is greatest which gives to its citizens the most in protection, education, recreation, amusement and beauty.

There will be an effort by the St. Thomas and St. Catharines Societies to have excursions organized next year at many points in Ontario, all to converge at Buffalo and to run by special train to Rochester, where the Chamber of Commerce will arrange a royal time for the combined parties.—St. Thomas Times.

Exhibiting Sweet Peas

Ernest Heggs, Hamilton, Ont.

If you are planning to exhibit some of your sweet peas and have to ship them, or if you would like to send some to a friend, a wooden box four to six inches deep and eighteen inches long will be found admirable to pack them in. Give the blooms at least one hour in water before packing them. Do not use any damp moss. Remember, they have the moisture in their stems.

Pack them dry, and place soft tissue paper over each layer. Do not be nervous about crushing the blooms, as the tighter you pack them, the fresher they will be when they have reached their destination. When they arrive put them in water, and place them in the darkest place you can find, for an hour; and they should be none the worse for their journey.

The setting of sweet peas is an art in itself, in connection with which there are one or two points to which I should like to refer. Always have something inside your vases to hold the stems where you want to place them. A good method is to get some coarse grasses and bind the stems with raffia or cotton so as to fit tightly inside the vase. Cut the ends with a sharp knife so as to leave them about an inch from the top of the vase.

By doing this you not only hold the stems in position, but you are able to give a more graceful effect.

Seasonable Paragraphs for the Gardener

CULTIVATION and watering are the two important operations in the garden during July. Thorough cultivation keeps down weeds and conserves moisture. It is a fact that a crop of weeds will evaporate more moisture from the soil than will be lost from the bare surface, provided the surface soil is kept loosened.

When watering give the ground a good soaking. A little may do more harm than none at all. It soaks down into the soil just far enough to make continuous capillary attraction, and when the surface soil becomes dry from evaporation the water rises from the lower levels, a continuous loss resulting.

Iris may soon be transplanted. This is an easily grown plant, having many delightful varieties.

Sweet peas are at their best in July. Keep the blossoms picked to prolong blooming. If a few very choice flowers are desired disbudding may be practiced and only the best buds allowed to mature. All seed pods should be kept picked off.

Don't think that because the increased growth which the flowers are making hides the weeds that weeding may be discontinued. Keep the garden cleaned up; it will look much neater.

Plants that have been in pots outdoors can be re-potted and established for winter flowers.

Some of the early planted flowers will be through blooming before the end of the season. There is plenty of time to sow seeds for late flowers.

Pansy and mignonette are two suitable flowers to plant just now.

Are you getting the maximum results from your garden by practicing a proper rotation? Take the time to make a good survey and plan to fill in the blanks that will soon be appearing.

Now is the time to study color effects and mass arrangements and find where improvements can be made for next year.

The pansies should be close picked for best results.

Seeds of perennials, such as hollyhock, columbine, larkspur, and foxglove may be sown now. As soon as large enough, transplant the seedlings to flats, protect them during the winter by putting them in a cold frame and covering with straw. Cover the frame with sash or shutters to keep the plants from becoming wet. They may then be planted out as soon as the garden is in condition in the spring.

After the raspberries have been picked prune the young, growing canes back to the proper height so that they will bush out well and not grow too spindly.

Keep a sharp look out for all insects.

Soap washes are effective for the sucking varieties while hellebore makes a suitable lunch for biting kinds.

If you have some fruit trees that have set heavily don't be afraid to thin. The increased size and the quality of the fruit will well repay you.

July is usually both hot and dry and the lawn should receive careful attention. Give plenty of water and do not cut too close.

Gladioli bulbs may be planted now for fall flowering.

When planting late annuals select a cool, moist place.

THE VEGETABLE GARDEN

Do not despair because you were not able to get as large a garden planted this spring as you intended. There is still time to plant peas, radish, beans, Swiss chard, beets, lettuce, carrots, in fact any of the vegetables that do not require the full season for growth. More water will need to be applied than to the spring sowings.

Don't be tempted to lie back and take things easy just because the garden is all planted. The weeds never rest and the drought may be long.

Late celery may still be set out. Boston Market, of the green celeries, and Golden Self-Blanching are good varieties.

If cut worms are giving trouble try the poisoned bran remedy. Mix fifty parts of bran with one part of Paris green. Moisten just sufficient that the Paris green will adhere to the bran. Spread this mixture about where the cutworms are doing the damage.

Remember that potato beetles are partial to egg plant and sometimes to tomatoes.

Shading the lettuce with cheese cloth, newspaper or by some other means, will prolong its usefulness.

Are ants spoiling the lawn? Get some carbon bisulphide from a druggist, make a hole or two in the ant hill with a broom stick, pour in a teaspoonful of the carbon bisulphide and cover with heavy sacking. This substance is highly inflammable and should be kept away from the fire.

Place a shingle or bit of board under the muskmelons to prevent them rotting.

Tomatoes will yield better if the plants are tied to stakes and some of the buds pruned off.

Frequent hoeing forms a dust mulch that prevents loss of water from evaporation.

Vegetables, particularly cabbage, beans and cauliflower, are subject to wilts and rots which are caused by bacteria. Care should be exercised when cultivating, especially when the plants are wet, not to injure them, as the bacteria gain entrance through wounds. Insects also serve as carriers. Fungi may give rise to secondary diseases.

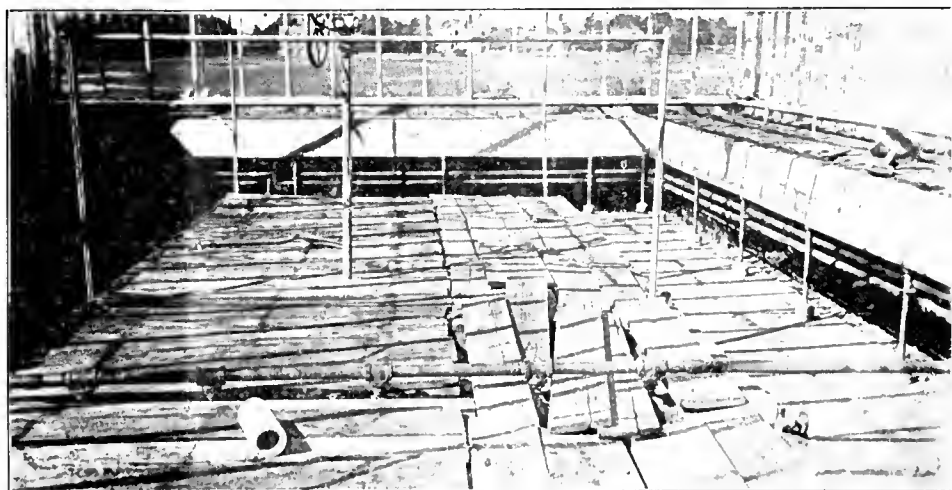
Nitrate of soda is a splendid stimulant to all vegetables.

Preparations will need to be made for blanching the celery. This may be done by placing boards on each side of the row or by heaping earth against the plants. Care must be taken to keep the earth out of the crown.

For bleaching a few individual plants, nothing is better than four inch drain tile. Tie the leaves loosely together with soft twine and slip the tile down over.

Don't leave the refuse from the vegetables already used lying about on the ground. Put it in the compost heap or get rid of it in some way. Refuse makes a splendid breeding place for insects and fungus diseases.

Be liberal with the water during the hot weather that may be expected.



A Method for Sterilizing Greenhouse Soil with Steam

Specific Diseases of Ginseng

Prof. J. E. Howitt

A VERY common and very widespread disease of ginseng is the alternaria blight. It is found in nearly every ginseng garden, and once the causal fungus becomes established its eradication is almost impossible. This disease attacks all parts of the plant above ground. The first indications of the disease are dark brown spots on the stems; later spots appear upon the leaves. These are half an inch or more in diameter, and in the early stage have a water soaked appearance, but later become dry and papery, with broad, rusty-brown margins. Very often these spots run into each other and the whole leaf becomes involved and withers. The stems often rot and fall over. If the diseased stems are examined, upon the surface will be noticed a velvety brown coating due to the presence of immense numbers of fungus spores.

ERADICATING THE DISEASE

Sanitary measures, such as the removal and the destruction of the diseased tops, the burning over of the beds in the autumn or the spraying of the surface with a strong copper sulphate solution (one pound of copper sulphate to five or ten gallons of water) will do much to hold this disease in check, but cannot be relied upon to prevent loss when conditions favorable to the development of the fungus occur. Protecting plants from infection by the Alternaria Fungus by spraying them with some good fungicide is the only sure way of preventing loss. Growers differ in their opinion as to what is the best fungicide for spraying ginseng. In the United States Bordeaux mixture has been found to give good results. Pyrox, which is a combined fungicide and insecticide, being constituted largely of Bordeaux and lead arsenate mixed together, has been found by some growers to give better results than Bordeaux mixture. Mr. Peter Menzies, the veteran ginseng grower, claims to have had good results by spraying with lime-sulphur of the strength of one gallon to forty gallons of water. Whatever fungicide is used, the success obtained will largely depend upon its thorough and timely application. The time to spray to prevent Alternaria Blight is just before a rain and not just after a rain as many growers seem to think. The fungus which causes the blight only gains entrance to the plants during rainy and cloudy weather when the plants are saturated with moisture, and thus it is important if infection is to be prevented to have the plants covered with a fungicide at such times. Thorough work can only be done with a nozzle giving a fine

mist and with a pump which gives a pressure of not less than sixty pounds. Professor Whetzel of Cornell University, says: "The most important times at which to spray to prevent Alternaria Blight are just when the plants are coming up and expanding; when the leaves are fully expanded; just before the blossoms open; just as the berries begin to enlarge and just before the berries begin to color."

RUST, FIBRE ROT OR END ROT

Rust or Fibre Rot is a very serious fungus disease of ginseng; it sometimes causes more loss than the Alternaria Blight. The symptoms of this disease vary very much with the age of the plants and the character of the weather. In seedlings the most noticeable symptoms during a dry season are the gradual change in the color of the leaves from dark healthy green to a sickly light green, followed by a premature coloring in shades of red and yellow. Later, the leaflets wither and the stems wilt. In damp weather the color changes are not so marked and wilting is more sudden, the seedlings toppling over and the tops remaining green. If the roots of the diseased seedlings are examined, the fibres will be found to be brown and rotted. Very often all the fibres of a root will be completely destroyed, giving the root a trimmed up appearance. On the larger roots rust spots are noticed, and frequently pocks and scars. These are often superficial, but sometimes extend deep into the flesh of the roots.

Applications of acid phosphate at the rate of from one thousand to two thousand pounds per acre are recommended for the control of this disease. Acid phosphate is now quite extensively used by the ginseng growers in the United States and has been found by many to greatly reduce the amount of rust. Sterilization of the soil with steam or formalin is recommended for seedling beds or for old beds that are to be reset.

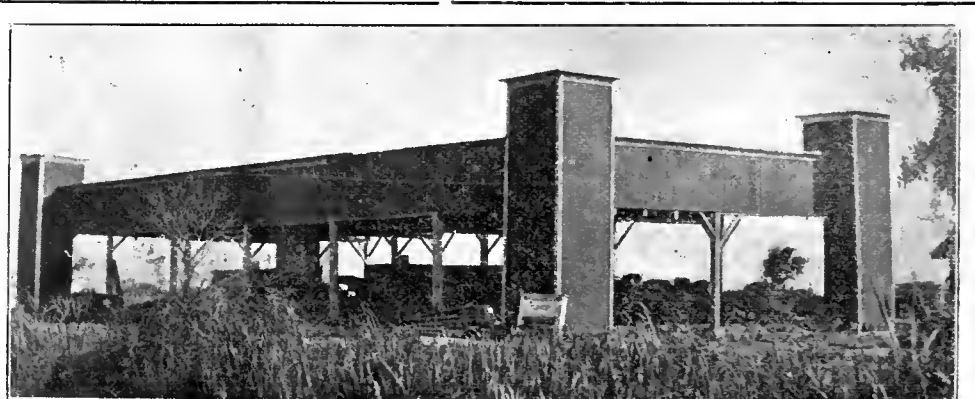
Phytophthora Mildew is a fungus disease which up to the present time has not troubled ginseng growers in Ontario, but as it has proved quite troublesome to Michigan growers it is advisable that a careful watch should be kept for it. The symptoms of this disease are very likely to be confused with the symptoms of Alternaria Blight. The most common symptom is the drooping of the leaflets of one of the leaves down around the petiole. Another noticeable symptom is the killing of the basis of the leaf stalks where they join the stem, causing the leaves to droop and die along the stem. But these symptoms are also characteristic of Alternaria Blight, but in the case of this disease the dead stems are covered by a brown velvety covering of spores, while stems attacked by mildew show in the early stages an almost indiscernible silvery-white coating due to the presence of the spores of the causal organism. This coating, however, soon disappears and the diseased parts become soft and slimy especially in damp weather. Spots similar to those of Alternaria Blight are produced upon the leaves. In the early stage they are dark green and water-soaked, but soon the centre of the spot becomes white, the margins remaining dark green and water-soaked. In damp weather the disease spreads down the stem and causes the root to rot.

Diseased seedlings should be removed from the beds as soon as they are noticed. Give a thorough spraying with Bordeaux mixture early in the spring while the plants are coming up.

DAMPING OFF OF SEEDLINGS

"Damping Off" is another fungus disease which very frequently destroys seedlings, especially in wet seasons, and in ginseng beds which are not properly underdrained. The fungus rots the stem just at the surface of the soil and the tops drop off. The symptoms are so characteristic that the disease is familiar to nearly every ginseng grower.

Professor Whetzel recommends the



Curing Sheds on Onion Farm of John Campbell, Pelee Island, Ont.

preventing of excessive water in the seed beds either by the exclusion of part or all of the rain. The planting of the seedlings in rows or drills will permit the soil between the rows to be loosened after each shower by a hoe or other tool and so prevent excessive moisture accumulating round the tender stems of the seedlings. The following advice is given by the editor of "Special Crops" for the prevention of Damping Off of Seedlings: "Take off the shade at once, then stir the soil well around the seedlings and spray well with water to which is added two ounces of common spirits of ammonia to the gallon.

PREVENT FUNGUS SPREADING

"If the seedlings are going down in solid patches it is well to dig a trench around the spots where they are going down as the fungus travels in and on the soil and goes from one plant to the next. We allow no rain to fall on the seedling plants until after the 15th of July, and are not troubled with Damping Off."

Growing Pickling Onions Successfully

By J. C. Inman

DOWN near Leamington, Ontario, where they grow thousands of bushels of tomatoes and melons every year, there has grown up another industry—the growing of pickling onions. It is doubtful if the tomato business or anything else can compete in point of returns for time and money invested.

Several years ago dredges were put to work and after the expenditure of several thousands of dollars the huge Pelee marsh was turned into one of the most productive spots in Canada. The original idea was to drain the grain lands back of the marsh but in doing so it was necessary to drain the marsh itself, and thus the rich black muck land was uncovered. It was found that there was from four to seventeen feet of purest muck.

SELLS BY CONTRACT

It is here that onion growing has become a noted industry. One of the most successful onion growers on the marsh is Mr. John Campbell. He has a contract with the Heinz Pickle Company, who have a large factory at Leamington, calling for six and a half acres of pickling onions, no more and no less. They have figured pretty closely just what is required.

Picklers, as they are called, are planted in loose well fertilized ground, about the same time regular onions are planted and are kept weeded by hand during the few weeks that they are in the ground. Belgian labor is employed by Mr. Campbell the season through. So much hand work is necessary that only

Soft Rot is thought to be a bacterial disease. The leaves of plants attacked by Soft Rot lose the dark green color so characteristic of healthy plants and become thin and delicate and tinged with red and yellow as though maturing for the autumn, and finally the leaves wilt and the stems drop over. If the roots of plants showing the early symptoms of the disease are dug up some part will be found to be rotted. The rot may be at the crown or on the fibres and larger rootlets. As the disease advances the whole root becomes soft, ill-smelling, and rotten. This disease is usually most destructive during wet periods in July and August, and is especially a disease of ginseng beds which are not properly underdrained.

All plants showing signs of rot should be removed from the beds as soon as they are noticed. Care should be taken to see that the beds are properly tile drained. If the disease becomes destructive in a bed, remove the plants and sterilize the soil with steam or formalin.

people who are used to the hardest work can or will stand it. One of the main advantages of foreign help is their reliability as they do nearly all the work they undertake under the contract system, guaranteeing satisfaction as far as thoroughness is concerned.

A HANDSOME INCOME

Mr. Campbell's income last year was \$4,700. Few people would believe that so much money could be made from six and a half acres, but it must be remembered that the land is worth one thousand dollars an acre, and that only a small acreage of such land is obtainable in the whole of Canada. The expense in connection with this pickler crop was \$1,600 everything included, leaving a clear profit of \$3,100, for the use of six and a half acres for some sixty days—the time required to raise a crop of picklers. This however was not the only income from the land as potatoes were planted as soon as the onions were off.

Tomato Pruning

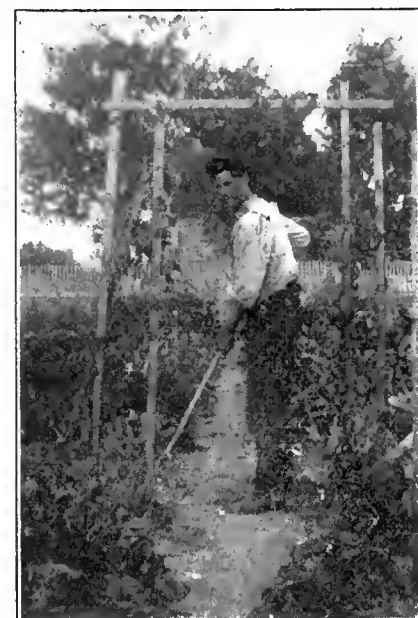
H. P. Blanchard, Ellershouse, N. S.

All pruning and thinning depends upon the axiom that

"Not the branch, but the root
Is what bears the fruit."

The method I follow is the "Potter System," with which I have had good success.

The tomato plant in growing throws out from the stem the leaf; and in the angle between the leaf stock and the stem, the "armpit," as someone called it; the branch a little later starts. It is



[In "Bellevue Gardens" of Dr. E. A. Smith, Shediac, N.B.]

by pinching or cutting out these budding branches or suckers that the pruning is done. One should not remove the leaf growth.

Allow the plant to grow until, in addition to the main stock, there are about three branch stocks. Diligently remove every branch sprout just as soon as it appears in the "armpit," but permit the four main stems to grow in length at their tips. However, pinch off the ends of the stems just beyond the third cluster of blossoms. This gives to each plant four main stems, three clusters of fruit to each stem; twelve in all.

GIVE PLANTS PLENTY ROOM

Every plant is at least four feet from its neighbor; five feet will not hurt in choice soil. This space permits the stems to be supported on small stakes, to keep the ripe fruit from the ground and also to spread the branches to the sun heat.

In tomato culture there are some things one may omit and yet succeed. For instance, where the soil is not too dirty, on gravelly soil, the stakes may perhaps be omitted and the vines allowed to lie on the ground. A little fruit thus will be ruined, not as much in value, perhaps as the labor of staking.

But to crowd the plants; to neglect the pruning; to allow grass and weeds to multiply; these things are fatal. It is unquestionable that two plants on the space proper for one will give less and poorer fruit than a single plant on that space; and the multiplication of blossoms and suckers robs the roots of just so much food that was required for the maximum quantity of choice fruit.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.
Published by The Horticultural
Publishing Company, Limited

PETERBORO, ONTARIO
H. BRONSON COWAN Managing Director

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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee-keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, \$1.40 an Inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1911. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,555	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,626		
Average each issue in 1907,		6,627	
		1913, 12,524	
Total		150,293	

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

UNITED ACTION NEEDED

Cooperation and united effort have scored another point. Elsewhere in this issue appears an announcement of the obtaining of better shipping facilities for the local fruit growers at Niagara-on-the-Lake. This is welcome news both to the growers directly concerned and to fruit growers as a body. It speaks well for the work done by Mr. G. E. McIntosh, the transportation agent of the O.F.G.A., and should be a source of encouragement to all.

The Canadian Horticulturist has always promoted the fight for better transportation facilities. The lean years, when an almost hopeless fight was maintained by the efforts of individual growers, will soon, we trust, be only a memory. The full years of concerted action are coming with the growth of cooperation.

Much has been done; much still remains to be done. A matter deserving of immediate action is the equalization of express rates. Where two express companies are in the field, rates are maintained at a nominal level by competition. But where only one company handles the traffic of a district the excessive charges often made are unreasonable.

Every grower can be of assistance by collecting in his own locality concrete evidence of over-charging. This should be forwarded to Mr. McIntosh in such a form that he can make the best use of it. Growers by furnishing evidence of failure on the part of railway companies to place cars, delays in transport, delays at terminals and junction points and insufficient icing, can aid materially and the fruit growing industry will benefit accordingly.

A PLEA FOR PARKS

Someone has said "God made the country and man made the town." And as we look out upon the green fields and the sparkling streams or stroll through sylvan glades, how insignificant does man's work seem. Nature has plumed herself in all her glory to coax us from our man-made burrows in city and town that we might enjoy to the full the peace and restfulness that she offers.

To those who are denied the pleasure of spending the summer months in the open country, how soothing is a quiet hour or two spent in some shady park. And how pleasing to the eye is a tastefully planted corner nook that has escaped the operations of the builder. Yet in our mad rush for more factories, smoking chimneys, and bigger business, the providing of breathing places for the increased population has received scanty attention. On the occasion of the recent visit of the St. Thomas Horticultural Society to Rochester, N.Y., Rev. Father West, who was one of the party, stated that "cities are measured to-day more than ever before by the happiness of the people, and that city is greatest which gives to its citizens the most in protection, education, recreation, amusement, and beauty."

By what means can such ideal city conditions be attained? "City cleaning" is one method. In several cities of the United States, "Clean-Up Leagues" have been organized among the boys, and wonders

have been accomplished. Rubbish of all kinds was collected, ash heaps and small garbage dumps carted away, and a general clean-up effected. In other cases public-minded citizens have had vacant lots plowed and attractively planted.

But above all, the crying need is for parks of considerable area where a sweltering population can find relief and quiet. While our cities are growing is the time to take action and have suitable blocks of land set aside. In after years it may be too late. Great responsibilities and opportunities rest with horticultural societies, town planning associations, and similar organizations which the populace as a whole expect to take the lead.

FIGHTING ORCHARD PESTS

The battle is still on. This year a more determined effort than ever is being made by fruit inspectors and others to eradicate and check orchard pests. Mr. Caesar, of the O.A.C., Guelph, who has charge of a large portion of this work, is most optimistic. Yellows and little peach are far less prevalent. Where several seasons ago sixty thousand trees were removed because of this disease, the last season only six thousand were taken out. Indications are that San Jose Scale can be controlled if concerted action is taken.

Here lies the part that must be played by the fruit grower. The inspectors can locate the disease; the grower must do the rest. There has been a great awakening among fruit men in this respect. More cleaning up of scale has been done during the past season than in any previous five. Thorough spraying has proved a certain control measure.

A determined effort is being made, and rightly so, to protect those who are making an honest fight against orchard pests, from the carelessness of their less progressive neighbors. All orchards that are found to have scale and are not properly sprayed are being destroyed. Nor is there any injustice in such a course. Once an orchard has become seriously infested with scale its days of usefulness are numbered. The owner loses little by its destruction and his neighbors are protected.

The good work that has been done this spring should be continued. Spasmodic efforts count for little. Fruit growers should cooperate with the inspectors and with one another to do all in their power to stamp out scale, yellows, and other fruit tree diseases.

MORE SCHOOL GARDENS

A matter of great importance is the place of the school garden in the education of the city child. The broad outlook and wide sympathy that characterize the really great man or woman are almost invariably traceable to a more or less constant intercourse with nature. The child that is denied such a privilege is heavily handicapped. A great responsibility rests upon the parents and educators of city children. Some there are who have shown how to take advantage of the assistance that nature offers.

A splendid opportunity awaits horticultural societies. Good work has been done by those societies which distributed seeds and awarded prizes to school children. The aim of all interested in this work should be to have a school garden, or system of home gardens, among the pupils in connection with every school in this province.

PUBLISHER'S DESK

This is the season of the year when nature appeals to all. To the city dweller, the cool, shady parks are inviting retreats. Our front cover illustration is a park scene, in which the landscape artist has taken nature into full partnership. The picture is all the more pleasing because of its quiet naturalness. With the exception of a few shrubs which are seen bordering the river, the effect is one of nature left undisturbed. In the reading columns the reader will find interesting matter relative to parks and city beautification. Too much emphasis cannot be laid upon the importance of this phase of city activity.

Last year our Special Greenhouse Number was so well received that a similar number will be issued next month. It will contain timely suggestions as to what may be planted in the greenhouse and the preparations that will be necessary. Perhaps you have not a greenhouse. Read the August issue carefully; it will tell you the advantages of having one.

The September issue will be the regular Fall Packing and Exhibition Number. We are making every effort to surpass all former issues.

We have had several favorable comments on the page of "Seasonable Paragraphs for the Gardener" that is now appearing in each issue. We are pleased that this feature has been so favorably received. This page may be looked for during the summer months.

We feel that we have in this issue a number of strong articles dealing with the various phases of horticulture. We have made an effort to have interesting matter in each department. This is in line with the fact that The Canadian Horticulturist is the only magazine in Canada which covers the whole field of horticulture.

A Taxation Blunder

F. E. Ellis, B.S.A.

The Guelph Horticultural Society should be congratulated upon the stand which it has taken in regard to the taxing of improvements. I read with interest the article which appeared in the May number of The Canadian Horticulturist, and I hope that it is the forerunner of a campaign for a better system of taxation. The utter folly of taxing improvements which add to the appearance of the city was impressed upon me by a concrete instance which came to my notice last fall.

Several years ago, when attending the Ontario Agricultural College, I roomed with a family that had just rented a new house. The surroundings were of the kind that usually characterize a recently erected dwelling. Out in front were heaps of clay as bare as the street; at the rear were piles of stones and rubbish. With commendable enterprise the tenant levelled the clay in preparation for a lawn and had the rubbish carted away.

Last fall I happened to be visiting in Guelph. My former boarding-house was now hardly recognizable. Facing the street was a nice lawn, with some trees and shrubs planted in the proper

places. At the back was a small but well cared for garden. I made some appropriate remarks about the improved appearance. "Doesn't pay in this town," was the reply. "When you were here last our assessment was \$1,400. The next year the lawn had made a good start and we had a good garden. The assessor called and pushed the assessment up \$50. To top it off, the landlord complained that he did not see that the improvements would add enough to the renting value of the house to make it worth while paying the extra taxes on that \$50."

Is it any wonder that home owners and home renters hesitate to add to the appearance of their properties in the face of a discouraging increase of taxes?

Parcels Post and the Fruit Grower

Geo. Powell, New York State

Parcel post makes it possible in the United States, where the regulations are more liberal than they are in Canada, for many fruit growers who have friends and acquaintances in cities to send small packages of apples, pears, peaches, and other fruits two or three times a week, when consumers may receive the same in the very best possible condition.

Under parcel post, fruit may be left on trees until nearly ripe, then shipped when their finest flavors have developed. When consumers know that they may receive fruit of this kind in small quantities they will extend the information to friends, and thus a very largely increased consumption and demand will follow by which large numbers of producers whose land and orchards are in the nearest zone to cities will be benefited by an individual line of trade which will in the future be possible to obtain. The rates for such shipments are favorable for their encouragement. The rates of postage, up to 50 lbs. in weight, are, for the first zone of 50 miles, five cents for the first pound, and one cent per pound thereafter, which would make the cost of a 12-lb. package of fruit, about one-fourth of a bushel, sixteen cents. This cost will be the same for the second zone of 150 miles. For the third zone of 300 miles, the cost for such package will be twenty-eight cents, and for the 600-mile zone, fifty-one cents.

This makes possible the delivery of fruit to consumers in the best possible condition, at a reasonable cost, with telephone calls and car fares cut out, while the producer may receive a higher value than would be difficult to obtain in any other way. While the parcel post regulations are being changed and perfected, the present limit of weight is fifty pounds. The size, length and girth of the package combined must come within seventy-two inches. On merchandise valued at fifty dollars insurance may be had for five cents and the regular postage, and on a value of one hundred dollars for ten cents and the regular postage. Still further changes will be made in the law that will be of much benefit to producers, especially those who have small places of a few acres.

Already some growers on the Hudson are selling apples, through parcel post, direct to city families, putting up two dozen Baldwins, Greenings or Spies for one dollar and delivering at a cost of sixteen cents postage. As a result of the lessened cost of delivery of many food products to consumers by parcel post, express companies that long have reaped enormous and unreasonable profits, will reorganize their

systems and thus add to a cheaper and better service than has heretofore been possible to obtain.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

Guelph

Members of the Guelph Horticultural Society this year, in addition to receiving the Canadian Horticulturist free, were offered their choice of nineteen splendid options. The officers of the society have sent out a notice calling for cooperative effort to make Guelph known as one of the prettiest and most beautiful cities in Canada. Lawns entered in the lawn competition will be judged during the months of June, July and August. In the lawn and flower garden competitions special prizes are being offered in each ward. Special competitions include one for vegetable gardens confined to working people only, and one for window and verandah boxes confined to members only.

St. Catharines

Over one thousand sets of gladiolus bulbs were distributed to the school children of the city. These sets were given to the pupils at the nominal price of five cents. The ordinary retail price would be at least thirty-five cents. Each set includes four varieties—America, Augusta, Columbia, and Mrs. F. King.

The early part of June was very favorable for roses. The hot weather brought the wood and foliage along rapidly. It is expected the best rose show ever will be held on June 23 or 25.

Hamilton

The garden meeting held at W. D. Flatt's, Lakehurst Villa, Burlington, on June 17th was a pleasant outing. Photographs have been taken of a number of the gardens and slides for the use of the society will be prepared from these. A flower show was held on June 24th and 25th, particulars of which will appear later.

St. Thomas

Much pleasure and profit resulted from the society's trip to Rochester, N.Y. The beautiful and numerous parks were a revelation. Those who viewed them were fired with a determination to make St. Thomas a city beautiful. An effort will be made next year to organize excursions at points in Ontario which will converge at Buffalo, and proceed by special train to Rochester.

The prize list totals over \$400. It comprises fifteen classes, some of which are divided into sub-classes, making eighteen small lawns, floral beautification of the home, perennial garden, rose garden, school lawn, porch and verandah beautification, flower and vegetable gardens, beautification of business premises and factories, best back yard, aster bed, tulip bed, and class for school children.

A charge was recently laid by President Bennett against a contractor for damaging a tree while moving a house. The society upheld the president in this action.

The Cooperative Marketing of Fruit*

A. E. Adams, of the United Fruit Companies, Ltd., Berwick, N. S.

THE cooperators own and operate their own factories. Considering the present state of cooperative production as carried on by the Cooperative Wholesale Society, certain facts must be noticed. Cooperators have undertaken production solely to supply their own needs. The goods made by the Cooperative Wholesale Society are made not to be sold for profit, but to be consumed by the proprietors of the factories where they are produced. Though one hears of Cooperative Wholesale Society goods being bought and sold, and of profits made on them, it is of the utmost importance in studying certain aspects of the Cooperative Wholesale Society production to remember that neither in the Cooperative Wholesale Society nor in the distributing store are the goods "sold" to the members at a "profit" as we understand these terms in the world of competitive trade. When the Cooperative Wholesale Society sends boots made at Leicester to a society, and the latter hands them to a member, there is no "sale" or "barter" in the economic sense, but merely a process of distribution. The man who gets the boots, being the part owner of the Cooperative Wholesale Society factory, the Cooperative Wholesale Society warehouse, and his local store, was really the principal in the transactions where the leather was bought and the labor hired for putting it together. He deposited a sum represented by his share of capital with certain agents or employees of his who undertook to supply him with a pair of boots when he wanted them. When he takes the pair of boots from his local store, he reduces the amount of his deposit with those agents by the value of his boots, and his payment when he obtains them is really making up that deposit to what it was before with a small sum added, which at the quarter end he may either withdraw or allow to remain in their hands. That he should choose to call his payment at the time of taking the boots the "price" of them, his taking them the "buying" of them, and the extra sum added to his deposit account with his employees the "profit" on them should not be allowed to mislead us as to the real nature of the transaction involved. In ordinary commerce the manufacturer, the shopkeeper and the customer are independent, free to buy or not to buy, to sell or not to sell, and free to fix prices. A little consideration will show how different cooperative trade is in these particulars.

The Cooperative Wholesale Society of Great Britain own and operate some of the largest and best equipped factories in Europe. They have five splendid flour and provender mills, the one at Trafford Wharf being the largest flour mill in the kingdom. There are four large soap factories turning out tremendous quantities of that very useful article. The soap works on the Manchester Ship Canal has a weekly output of three hundred tons of soap and fifty tons of candles. They have in Manchester a large tobacco factory, with a yearly turnover of \$2,600,000. They own several large printing and boxmaking works at various parts of the country. At their Longsight printing works they employ over one thousand hands.

They own and operate their own factories

for the manufacture of fabrics of all kinds, clothing, hardware, ironmongery, brushes, mats, furniture, bedsteads, bedding, boots, drugs, preserves, and practically everything the mind can imagine. The boot factories are said to be the largest in the world, their output being two million pairs per annum.

Their tea warehouse in London has the same distinction, their output being two hundred tons a week. They own three large tea estates in Ceylon. They claim to be absolutely self-supporting. They even go in for farming, and at Roden have a farm of eight hundred acres mostly in fruit. Here they also have a large convalescent home for the families of cooperators. At Maden they own another one hundred and fifty acre fruit farm.

There are employed by the central in their factories alone, no less than one hundred and twenty-three persons, the pay-roll amounting to the respectable sum of forty-five million dollars a year.

CONTROL A BANK

To my mind one of the most important departments of the Cooperative Wholesale Society of Great Britain is their bank. They operate their own banks, the turnover of that department last year being no less than six hundred and eighty-two million five hundred and seventy-five thousand. We in Nova Scotia will never feel that our work is complete till we are powerful enough to obtain a Dominion Charter to likewise do our own banking.

The Cooperative Wholesale Society also owns its own fleet of steamships, so that they are independent of outside assistance even in the matter of transportation. I hope after this year's experience the time is not far distant when the United Fruit Companies of Nova Scotia will be in a position to avail themselves of the powers they possess under their charter and operate their own steamships for the transportation of the fruit of the Valley.

You will see by the facts and figures I have given that the cooperative movement

started by that handful of humble Rockdale weavers has grown to be a tremendous body and one of the most powerful organizations for good this world possesses. They have the cooperators shown what a foolish blunder the retail merchants of England made in trying to kill cooperation. Let the merchants of Canada, both wholesale and retail, and let the operators and brokers of Canada be careful that they make no similar blunder. In England they simply forced the cooperators into all kinds of manufacturing and wholesale enterprise much sooner than they would have undertaken them even as the big fertilizer combines in Canada and the United States forced the United Fruit Companies to go direct to the fountain head for its supplies.

What might be done if men were wise; What glorious deeds, my suffering brothers

Would they unite

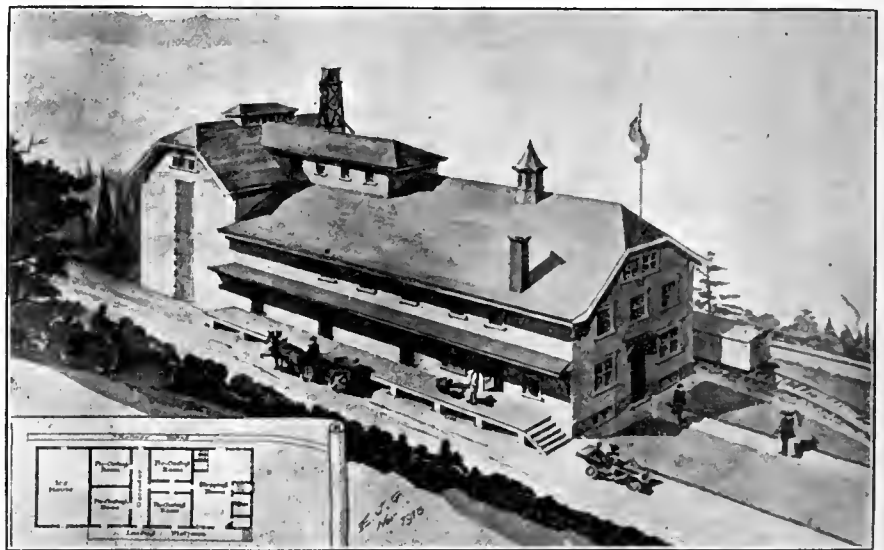
In love and right,

And cease their scorn for one another.

Let those who are offering such a strenuous opposition to cooperation in the Annapolis Valley of Nova Scotia bear in mind that nobody who serves any legitimate economic need has cause to fear cooperation, for by cooperation we are united to assist not combined to injure as are the great trusts and monopolies and combines.

From the European movement all other cooperative movements have sprung. The idea has been applied to many problems and has been equally successful with all. It has been applied to municipal problems and has resulted in municipal ownership of water and supply of gas, electricity, tramways, etc., and, what will possibly interest you mostly, it has been applied to agricultural problems also with equal success.

It is a curious fact, however, that in matters agricultural, it requires a series of misfortunes before the farmer will take hold of anything new, especially when the to him, new theory will possibly do away with much of his individual independence. Hence the examples that can be given of success of cooperation in agricultural matters are all the more striking. The well known success of cooperation in Denmark is a splendid illustration.



Government Pre-cooling and Cold Storage Plant at Grimsby, Ont.

The refrigerator capacity will be 50,000 cubic feet. The space on the ground floor is divided into four rooms, each large enough to handle two carloads of fruit at the same time. These rooms are intended for pre-cooling, part of the basement being available for storage. The equipment is the Gravity Brine System, in which crushed ice and salt are used.

*Extract from an address delivered before the last annual convention of the Nova Scotia Fruit Growers' Association.

St. Lawrence Growers will Exhibit

Editor, The Canadian Horticulturist.—In the May issue of your paper there appeared an article stating that the St. Lawrence Valley Fruit Growers' Association have decided to discontinue exhibiting at the Horticultural Exhibition unless a rule be made prohibiting Government men who act, assist, or advise as packers, from officiating as judges.

I wish to correct the misunderstanding at the article in question may cause. While a few of the members warmly discussed the injustice of the above practice, and were supported by the meeting, yet there was no mention made of discontinuing exhibiting at the fair for that reason. The majority of the members have confidence enough in the judges appointed, to feel that the fruit would be judged fairly and that the final placing of awards would be done conscientiously, and they feel that it was the case in this instance. The point that they did raise, as was mentioned in the article, was the chance of a judge who knew all the fruit in the boxes of one exhibit and not in that of another being somewhat biased in his final sizing up of the two exhibits and placing the awards.

Again, we did not feel that the Baldwin apple was rated as a better apple than the McIntosh, simply because it was placed first, because we know that no judge of fruit would consider it such, other things being equal. We take it that it was chiefly a fault of our pack which had gone somewhat slack with the long shipment that caused us to lose some points and intend to make every effort to overcome that difficulty when exhibiting again. The St. Lawrence Valley Fruit Growers' Association appreciates the encouragement and assistance that was given them by the executive of the Horticultural Exhibition and intend to give the exhibition every support in future years.—E. F. Bradt, Secy., St. Lawrence Valley F.G.A.

Cooperative Fruit Experiments

An interesting line of experimental work has been commenced this spring by Prof. Crow's department of the O.A.C. This work is being undertaken at the request of the Board of Control of the Ontario Experiment Stations. It is cooperative in its nature in that the experiments are to be conducted in the orchards of men who have the facilities to offer and are interested in the work. The actual experiments are under the charge of G. J. Culham, B.S.A., who last year did orchard survey work in Northern Ontario. The expenses will be covered by a portion of the Dominion agricultural grant.

A wide range of experiments will be conducted and as much work covered as it will be possible to keep in touch with. The intention is to confine the experiments mostly to apples and the harder fruits. A start has been made in Oshawa. Mr. Culham this spring top grafted some Ben Davis with McIntosh, Snow and Spy. All three varieties are grafted on every tree. It is hoped in this way to ascertain which of these varieties will do best for top working the Ben Davis. Other work contemplated is the study of the effect of various kinds and amounts of fertilizers, summer pruning for fruit buds, winter injury and methods of prevention, budding and grafting, and the question of unproductiveness in fruit trees. A special study

Douglas Gardens

OAKVILLE, ONT.

IRIS

(GERMANICA)

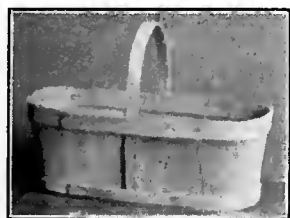
The best time to transplant these Irises is directly after the blooming season, when they are dormant. We are booking orders now for immediate delivery.

2. I. FLORENTINA ALBA (S and F) white, faintly suffused with pale grayish lavender, each 20c; 3, 50c; 10, \$1.50.
7. I. VARIEGATA, IRIS KOENIG (King of Iris) (S), lemon yellow (F), maroon and yellow, each 50c.
13. I. HYBRIDA, RHEIN NIXE, (S) pure white (F) violet blue with white edge, each 50c.
15. I. HYBRIDA, MRS. G. DARWIN, white reticulated gold and violet, each 25c; 3, 60c; 10, \$2.00.
18. I. HYBRIDS, WYOMISSING, (1909) (S) creamery white, (F) deep rose. Deliciously fragrant, each \$1.00.
25. I. PALLIDA, JUNIATA (1909) (S and F) clean blue, very tall, each 75c.
26. I. PALLIDA, MANDRALISCAE (S and F) rich lavender purple, 40 in., each 25c; 3, 60c; 10, \$2.00.
29. I. PPLICATA, MME. CHEREAU (S and F) white frilled with blue, 32 in., each 15c; 3, 40c; 10, \$1.25.
33. I. SQUALENS, Jacquesiana (S) coppery crimson (F) maroon, 30 in., each 25c; 3, 60c; 10, \$2.00.

Carriage prepaid—cash with order, please.

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Peerless Climax Fruit Baskets



Heaviest, Strongest and Best

In the market. Especially suitable for long distance shipping. Last year the demand exceeded the supply

Therefore Order Early

Canada Wood Products Co.

ST. THOMAS, ONT.



Make Big Profits With This Canning Machine at Home!

Here is the ideal practical canning apparatus for home canning surplus Fruit and Vegetables. It is simple, easy to operate and inexpensive. Enables you to get top prices for products, saves early ripenings and wind-falls, and protects you against the price-lowering effects of an overloaded market. The

MODERN CANNER

does away with heavy waste, and earns big profits. Built in three sizes,—1000, 2,000 and 4,000 cans in ten hours. We have eliminated all middlemen and agents. Every fruit grower, farmer and market gardener needs our free booklet. Write for it to-day before you leave this page.

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Canadian Branch

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LONDON, CANADA

September 11th to 19th, 1914

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All Fruit to be Judged by Standard. Approved by Ontario Fruit Growers' Association.

The Live Exhibition

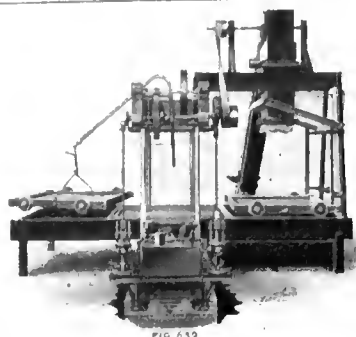
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Special Railway Rates for Exhibitors and Visitors.

Prize Lists and all information from the Secretary, London, Ont.

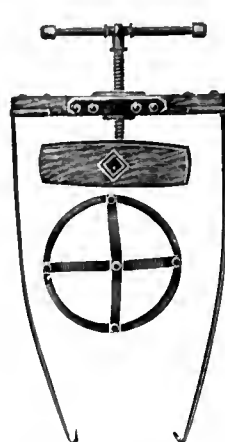
W. J. REID, President

A. M. HUNT, Secretary



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**CIDER PRESS, EVAPORATOR; FRUIT or
VEGETABLE GRADER.**

THE BROWN, BOGGS CO., Limited
HAMILTON - CANADA

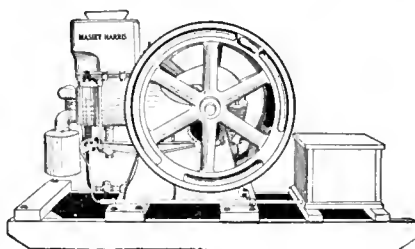


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Used by all leading
apple packers in Can-
ada, United States and
England.

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Manufacturers
BRIGHTON, ONT.
Canada



A Reliable and Economical Source of Power

A MASSEY-HARRIS ENGINE mounted on
skids can be moved around to any place where
you need help in the way of power.

You will be surprised to find the many uses to which
it can be put and the small cost as compared with
manual labor, not only around the farm but in the
dairy and kitchen, where it does so much to lighten
the work of the women on the farm.

And perhaps the most interesting part of it is that an
Engine costs nothing in "salary" or "keep" when
not running.

Our Catalogue "Farm Power" gives many suggestions
for Saving Labor.



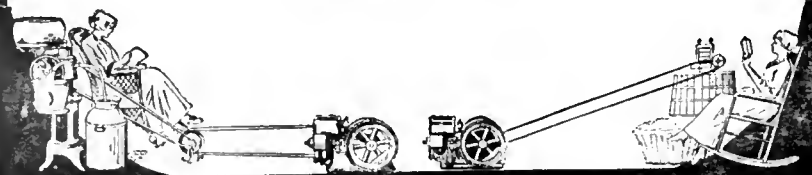
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of this last problem will be made to a
certain if unproductiveness is a matter
bud formation or due to some other reason.

These cooperative experiments are
intended to duplicate the demonstration
work conducted by the Department. As
fruit growers who have the right material
to work upon and are interested in the
work should get in touch with Prof.
W. Crow, O.A.C., Guelph.

Welcome Improvements

Fruit shippers at Niagara-on-the-Lake
and St. Catharines will be pleased to hear
that the Transportation Committee of the
Ontario Fruit Growers' Association has
the assurance that facilities for handling
express shipments will be greatly improved
at these points.

At Niagara-on-the-Lake the shippers
were compelled to deliver their fruit on the
dock, exposed to the weather until loaded
on the boat, and in case of rain they were
liable to heavy loss, as was experienced
last season. At that time an effort was
made to have the Richelieu and Ontario
Company provide a suitable shelter, but
without result. Early this spring the com-
plaint of the shippers was again presented
to the officials of the company by the as-
sociation's transportation officer, G. E. M.
Intosh, of Forest. Mr. Paton, the assistant
operating superintendent, said his company
was anxious to meet the wishes of the ship-
pers, and after a careful consideration of
the conditions, advises the Transportation
Committee, under date of May 30, that a
shelter similar to the one at Queenston will
be erected at Niagara-on-the-Lake.

The steamer Macassa will also make regu-
lar trips twice daily between June 17 and
September 5, from Toronto to Grimsby
Beach and will accept fruit shipments for
each sailing.

At St. Catharines express accommodation
has also been unsatisfactory for several
seasons, and has remained so because of
contemplated improvements by the G.T.R.
being delayed until the decision of the com-
mission is given in regard to the proposed high
level bridge over the ravine, towards which
the railway company has offered to con-
tribute \$20,000. The indications are, how-
ever, that the bylaw to be submitted in the
near future will carry, in which event work
will start at once on a new passenger depot
with platforms and shelters to fully take
care of the express shipments, also a freight
shed six hundred feet long, and ten addi-
tional tracks to be laid north of the present
yard.

Niagara Peninsula

Indications are that there will be a record
crop of cherries. Growers are hoping to
receive from sixty to eighty cents for sweet
cherries en bloc. Sweet cherries are not
expected to be any higher than in previous
years.

The peach crop is practically a failure.
Peach leaf curl is appearing in nearly every
locality, and shows in abundance in orchards
that were not carefully sprayed. There is
more curl than there has been in the
two seasons, but if warm, dry weather prevails
for the next few weeks the damage will
not be so great. Growers have gone out
in more extensively for tomatoes to offset
the peach shortage.

The strawberry crop will be below average
and prices will run high. In British
Columbia a fair crop of berries is expected.

SELECT ITALIAN QUEENS

We will both be disappointed if you do not order a half dozen of our select untested Italian Queens at six for \$4.00, 1 lb. Bees with Queens, \$2.50. We have a number of satisfied Canadian customers. We want you too. Circular Free, write

J. B. HOLLOPETER**BOX 56 - - - PENTZ, Pa., U.S.A.****QUEENS QUEENS**

Three Banded and Golden Italians. Vigorous queens, from clean, healthy colonies. Safe delivery at your Post Office guaranteed. See our catalogue.

THE HAM & NOTT CO., Ltd.**BRANTFORD - - - - - ONT.****Bees and Bee Supplies**

Roots, Dadants, Ham & Nott's goods. Honey, Wax, Poultry Supplies, Seeds, etc.

Write for a Catalogue

THE CHAS. E. HOPPER COMPANY
185 Wright Avenue, Toronto, Ont.**PRICE LIST**

Three Banded Red Clover Italian Queens
Bred from Tested Stock

Untested Queens, \$1 each, \$5 for six
Selected untested, \$1.25 each, \$7 for six

Tested Selected Guaranteed Queens, \$2 each

Cash With Order

W. R. STIRLING

Box 214 Ridgetown, Ont.

QUEENS AND BEES

We can supply choice leather colored Italian Queens promptly at the following prices:

	1	6	12
Untested	\$1.00	\$5.50	\$10.50
Tested	1.50	8.50	16.00
Select tested	2.00	11.25	22.50

For prices on larger quantities please write us.

We offer bees in pound packages from the same stock as above as follows after July 1st:

1 lb.	2 lb.	3 lb.
\$1.50	\$2.50	\$3.50

These prices do not include a queen. Add price of queen you may select to price of package when ordering. Safe delivery guaranteed. Full directions for handling sent with each shipment.

A full stock of bee-keepers' supplies always on hand for prompt shipment. Catalogue on request.

We Want More Beeswax.

F. W. JONES - BEDFORD, QUE.**3-BAND LONG-TONGUED RED-CLOVER ITALIAN QUEENS**

For Sale. — My long-tongued Golden Queens are proving themselves to be the bee to clean Foul Brood. This is why I have such a large trade in Canada. Mr. E. L. Cox, of Jesup, Iowa, introduced 50 of my 3-band queens in Foul-Broody colonies in 1912; and he said the disease was cleaned up where each of those queens was put. They gathered such a large crop of honey in 1912 that he bought 50 more in 1913.

One Untested, 75c; 6, \$4.00; 12, \$7.00; 25, \$13.50; 50, \$25.00.

Double the above for tested queens. Bees by the pound: One lb., \$2.00; 2 lbs., \$4.00. One-frame nucleus, \$2.00; 2 frame, \$3.00; 3-frame, \$4.00. To all the above packages add the price of queen. I will begin to send out queens in April.

Positively no checks will be accepted. Send money by P. O. Money Orders. All queens arriving dead will be replaced if cage is returned by return mail.

J. B. ALEXANDER, CATO, ARK.

Well-Bred
Italian Bees and Queens
Standard
Bee-Keepers' Supplies
Illustrated Price
List Free



EARL M. NICHOLS
Lyonsville, Massachusetts, U.S.A.

SELECT UNTESTED QUEENS, 75c. EACH

One lb. package of Bees, no queen, \$1.25.

Two lb. package of Bees, no queen, \$2.25.

THE STOVER APIARIES

MAYHEW, MISS.

THE BEEKEEPERS' REVIEW CLUBBING LIST

The Review and Gleanings one year, \$1.50.
The Review and American Bee Journal one year, \$1.50.

All three for one year only \$2.00.

Canadian Subscribers add for postage as follows: Gleanings, 30c.; A. B. J., 10c.

Address

THE BEEKEEPERS' REVIEW, North Star, Mich.**BEES AND QUEENS**

Queens bred from Doolittle's best stock, untested, 60 cts. each; \$6.60 per dozen; \$50 per 100. Same stock of year-old queens removed from our colonies to prevent swarming, 50 cts. each; \$5.40 per dozen; \$40 per 100. Delivery guaranteed. Nuclei, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted. We have a rare bargain of apiary of several hundred colonies of bees for sale on easy terms. Particulars on request.

SPENCER APIARIES - NORDHOFF, CAL.**MILLER'S STRAIN ITALIAN QUEENS**

By return mail after June 5th to 10th, or money refunded; bred from best red-clover strains in United States, in full colonies; from my Superior Breeders, northern bred, for business, long tongued, leather color or three banded, gentle, winter well, hustlers. Not inclined to swarm, roll honey in.

1 Untested \$1.00, 6 \$5.00, 12 \$9.00.
1 Sel. Untested \$1.25, 6 \$6.00, 12 \$11.00.

A specialist of 17 years' experience.
Safe arrival and satisfaction guaranteed.

I. F. MILLER, BROOKVILLE, PA., U.S.A.**SUPERIOR ITALIAN QUEENS**

July and August is the best time to requeen. Have your colonies go into winter with vigorous, young queens.

Send your order now.

\$1.00 each, Six for \$5.00, \$9.00 doz.**P. TEMPLE****438 Gladstone Ave. - Toronto, Ont.****QUEENS**

Tested, \$1.00 each; 3 to 6, 90c. each.

Untested, 75c. each; 3 to 6, 70c. each.

Bees per lb., \$1.50, no Queens.

Nuclei per frame, no Queens, \$1.50.

I. N. BANKSTON**Box 141, Buffalo, Texas, U. S. A.****LEATHER COLORED ITALIAN QUEENS**

NOW READY

Untested Queens, \$1 each, \$10 doz., or 75c. each in lots of 25 or more. Warranted purely mated Queens, \$1 each, \$12 doz. Tested Queens, \$1.50 each. Breeding Queens, \$5 each.

I can fill your order for one queen or by the hundred and guarantee you a square deal.

JOHN A. MCKINNON, ST. EUGENE, ONT.**QUEENS**

by return mail or your money back. Guaranteed purely mated. J. E. Hand strain of three-banded Italians. Write for price list and free booklet, "How to Transfer, Get Honey and Increase."

J. M. GINZERIC, ARTHUR, ILL., U. S. A.**BUY CARNIOLANS IN CARNIOLA**

Pure Carniolan Alpine Bees
Write in English for Booklet and Price List. Awarded 60 Honors.

Johann Strgar, - Wittnach

P.O. Wocheiner Feistritz

Upper-Carniola (Krain), Austria

CARNIOLAN QUEENS

Carniolans are excellent winterers, build up rapidly in the spring, enter supers rapidly, are gentle and the best of honey gatherers. Ask for our free paper, "Superiority of the Carniolan Bee."

Untested, \$1.00 each; dozen, \$9.00.

1 lb. package Bees, \$1.50 without Queen, with untested Queen \$2.50.

ALBERT G. HANN**Carniolan Queen Breeder - Clinton, N.J., U.S.A.****Am now shipping untested Queens from my Celebrated Pedigreed Strain**

My Bees are the product of many years of breeding by Swarthmore and Henry Alley. Both names stand out like beacon lights among our past and present breeders for the best queens ever produced in the United States.

Never had foul brood.

SWARTHMORE APIARIES**SWARTHMORE - PA., U.S.A.****Famous Queens Direct from Italy**

Bees more beautiful, more gentle, more industrious, the best honey gatherers.
PRIZES—VI. Swiss Agricultural Exposition, Berne, 1895.

Swiss National Exposition, Geneva, 1896

Beekeeping Exhibition, Liege, Belgium, 1896

Beekeeping Exhibition, Frankfurt, O. M. (Germany), 1907

Universal Exposition, St. Louis, Mo., U.S.A., 1904.

The highest award.

Extra Breeding Queens, \$3.00; Selected, \$2.00; Fertilized, \$1.50. Lower prices per dozen or more Queens. Safe arrival guaranteed.

Dominion of Canada
Department of Agriculture,
Central Experimental Farm,
Ottawa, 5th Sept., 1914.

I am pleased to inform you that the three queens were received in good condition, and have been safely introduced.

I have the honor to be, Sir,

Your obedient servant,

(Signed) C. GORDON HEWITT,

Dominion Entomologist.

ANTHONY BIAGGI**PEDEVILLA, NEAR BELLINZONA ITALIAN SWITZERLAND**

This country, politically, Switzerland Republic, lies geographically in Italy and possesses the best kind of Bees known.

Mention in writing—The Canadian Horticulturist and Beekeeper

SOCIETY NOTES

Hamilton

The Society held a most enjoyable outing, June 16th, at the home of Mr. W. D. Flatt, Lakehurst Villa, Port Nelson. Mr. and Mrs. Flatt had a cordial welcome for the two hundred ladies and gentlemen who were present.

The party spent some time admiring the grounds and the fine view of the lake, which nearly touches the back of the lawn. There are several terraces from the back of the house, the last one being a short distance from the lake beach. Along the side and across the front is an artistic cobble stone wall, with large iron gates attached to tall stone pillars. All around this wall is a continuous flower bed, three yards wide, which was a mass of bloom, from the lovely old flowers, many of which are seldom seen now—giant poppies, fleur de lis, sweet william, larkspur, cosmos, pinks in great variety and many other kinds of old flowers. In the corner where the front and side walls join, is a fine large rockery, filled with ferns and flowers that bloom in the shade, as it is under some large trees. At the back of the house is a large star-shaped bed, each point of the star being a solid mass of a different color of pansies, the effect of which is charming. A pedestal stands in the centre, upon which a sun dial will be placed later. Mr. and Mrs. Flatt had afternoon tea served on the lawn, chairs being placed under the trees for the guests. The outing was voted by all as a most enjoyable one.

Ten Million Egg Masses Destroyed

From last November to the first of June a campaign was waged by the schools of Connecticut against the tent caterpillar. The State Agricultural College organized a contest and suitable prizes were offered to schools and pupils. As nearly as can be estimated over 10,000,000 egg-masses have been collected through the efforts of the pupils of the state.

While there seems to be more tent-caterpillars than ever throughout the state and the collection of over ten million masses does not seem to have materially lessened the tent caterpillars, such is not the case. In the localities where the children have collected large numbers of egg-masses there is a marked difference in the number of defoliated trees and a large amount of damage has been averted. Also by the efforts of the children many roadside trees have been kept free from the ugly nests and defoliated branches. While collecting egg-masses of the tent-caterpillar the egg-masses of other insects have been found and sent to the Connecticut Agricultural College for identification. One of the most effective methods of controlling many insects has been brought to the attention of the children of the state.

School Gardens Increasing

A gratifying sign of the times is the increased interest that is being shown in connection with school gardening. A representative of Prof. McCready's department at Guelph recently called at the office of The Canadian Horticulturist and gave an optimistic report of conditions as he found them while doing inspection

work. Last year the number of rural schools in Ontario conducting a regular system of school gardening was one hundred and seventy-seven. This season the number has increased to two hundred and ninety-three. About five hundred more seeds from the department, but have not specially prepared garden at the school for the use of all the pupils. In addition each district representative—there is one in nearly every county—has on an average twenty schools which hold school fairs and have the children conduct plot experiments at home.

Eight inspectors travel throughout the province in the summer, inspecting the gardens and also giving instructions and holding meetings wherever necessary. The inspectors confine themselves mostly to rural schools, but occasionally visit the city schools. These men are also available for lecture work, and on several occasions addresses on school gardening have been delivered before horticultural societies. A number of societies have set excellent examples by cooperating with the school and aiding by such means as donating prizes and distributing seeds.

Item of Interest

Mr. Marshall, a business orchardist of Fitchburg, Mass., who last year picked 4,000 boxes of choice apples, has had for years a standing offer, posted on the walls of his packing house, of one dollar to any man, visitor or laborer, who found a wormy apple on any tree or under a tree. The dollar is there yet, and the wormy apple has not been found. This speaks volumes for the thoroughness of Mr. Marshall's spraying.



Send for this Unusual Greenhouse Catalog

JUST from the glimpse you get of these two pages, you can see how charming the general treatment must be, and how complete is the showing of each subject considered.

One thing that we think is decidedly in its favor, is that by far the greater number of subjects shown, are of modest size—say, from 33 feet long up to 100 feet. There are just enough of the larger subjects to give you an idea of the scope of our work.

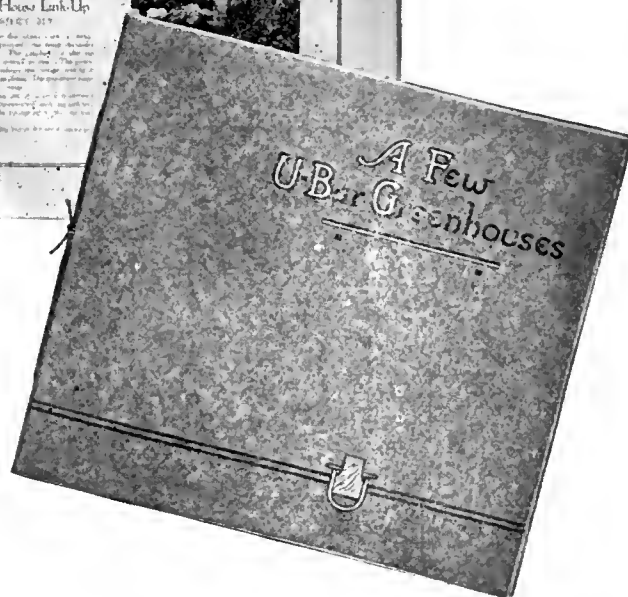
The text is free from any technical description, and reads along just like you and I would chat about it, if we were comfortably seated together talking things over.

If you are interested in having a greenhouse, or adding to the one you already have, you are welcome to this catalog.

U-BAR GREENHOUSES

PIERSON U-BAR CO

ONE MADISON AVE. NEW YORK
CANADIAN OFFICE, 10 PHILLIPS PLACE, MONTREAL



Change in Pooling System

A number of important changes have been made by the Central Selling Agency of British Columbia in regard to the rules and regulations covering the grading, packing, and standardizing of fruit. The most important change is perhaps in the method of pooling which has been one of the most difficult problems with which the management have had to deal, and a careful consideration of the new method would indicate that much of the unwieldiness of the former method has been disposed of.

Up to now it has been the practice to open a separate pool for each variety of fruit, and last season for apples alone there were more than 140 pools. This year there will probably be less than fifty pools for apples, thus greatly reducing the expenses of operating and bookkeeping.

This will be brought about by the adoption of a list of standard varieties, which will be known as the "Main Crop List." The other hundred or more varieties will be handled as an orchard run pack, graded as "No. 2 Special." This same plan is to be followed in the handling of other fruits as well as apples.

The "Main Crop List" of apples, which is divided into three general classes—summer, early fall, and fall and winter—will be graded into numbers one and two, and include the following varieties:

Summer: Red, White and Striped Astrachan, Yellow Transparent, Early Harvest, Early Colton, Sweet Bough, Tetofsky, and Liveland Raspberry.

Early Fall: Duchess, Wealthy, Gravenstein, Jeffries, and Maiden Blush.

Fall and Winter: Arkansas Black, Baldwin, Canada Baldwin, Canada Red, Cox's Orange, Delicious, Fameuse, Gano, Grimes Golden, Hubbardson's Nonsuch, Jonathan, Kailn of Spitz, King David, Mackintosh Red, New York Wine, Northern Spy, Ontario, Rawls Jennette, Ribston Pippin, Rome Beauty, Snow, Seek-No-Further, Spitzenburg, Stamen Winesap, Sutton Beauty, Wagener, Winesap, Winter Banana, W. W. Permain, and Yellow Newtown.

Plums, which will be graded into numbers one and two and standardized, will be: Black Diamond, Bradshaw, Burbank, Columbia, Coe's Golden Drop, Damson, Greengage, Imperial Gage, Lombard, Peach, Pond's Seedling, Sugar, Tragedy, and Yellow Egg. Other plums will be treated as orchard run packs, not pooled according to variety, but will be graded numbers one and two.

Several of the most popular varieties of peaches will be pooled in crops according to season. Hale's Early, Brigg's Ren May, and the Alexanders will be pooled together, as will the Dewey and Triumph. A third pool will include Fitzgerald, Foster, and Early Crawfords. Late Crawfords, Elbertas, Yellow St. Johns, and yellow free stones will each have separate pools, while all of the peaches will be graded number one and number two.

Another important ruling relates to the weight of the packages of the different fruits all of which have varied, some not a great deal, others considerably. As an instance the minimum gross weight of a box of apples must be forty-nine pounds. If a package does not come up to this weight it will be regraded number two.

Bissell Steel Stone Boat

Used extensively by gardeners and fruit growers. Steel Railing around edges. Steel Runners, Bevel Corners. 7 ft. by 2, 24 or 3 ft. Write Dept. N, for Folder and Prices.

T. E. BISSELL CO., LTD., ELORA, ONT.

Send your consignments of APPLES to the Home Country to

Ridley Houlding & Co.

COVENT GARDEN
LONDON, ENGLAND

who specialize in APPLES and PEARS during the Season. Personal attention, prompt account sales and remittance

Correspondence invited

Seadons Seeds

FREE

To all who ask for our useful illustrated hardy flower book we send with FREE offer of 25 cents worth of Seadons Seeds guaranteed to succeed post free Write today SEADONS, St. Albans, England

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalog free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

GINSENG

True Canadian Nursery Stock for Fall Planting. 1,000 Stratified Seeds \$3.00. 1,000 one year old roots \$20.00. 1,000 two year old roots \$40.00. Write us for full particulars.
I. E. YORK & CO. - WATERFORD, ONT.

SALESMEN WANTED

Liberal commission and exclusive territory to men who can show results. Write now for the chance of selling Bailey's

STANDARD CYCLOPEDIA OF HORTICULTURE

Send details re territory and references to The Macmillan Co. of Canada, Ltd., 70 Bond St., Toronto, Ont.

CARNIOLAN QUEENS

After July 1st

Untested	1	6	12
	\$1.00	\$5.50	\$9.00

Tested, the same price.

Address, WM. KERNAN, DUSHORE, PA., U.S.A.
R.F.D. No. 2

IF YOU WANT SOMETHING BETTER

than what you already have in the Queen and Bee line, try one of the Atchley Dollar Queens. I make a specialty of Dollar Queens, or \$10.00 per doz. Good, strong two-frame nuclei with Untested Queen, \$2.50 each; three-frame, \$3.00. Safe arrival and satisfaction guaranteed.

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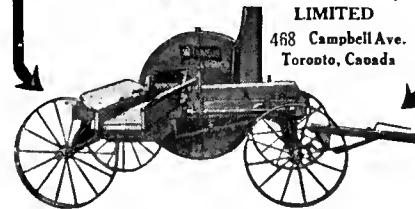
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Our "B" machine, built especially for the farmer. A combination machine—it will cut and deliver green corn into the highest silo or dry straw or hay into the mow. 12-inch throat, rolls raise 6 inches and set close to knives—solid, compact cutting surface. Can change cut without stopping. Can be reversed instantly. Direct pneumatic delivery. Knife wheel carries fans. No lodging, everything cut, wheel always in balance. Steel fan case.

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Gasoline will quickly remove Tanglefoot from clothes or furniture.

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Open Tanglefoot slowly. In cool weather warm slightly. For best results place Tanglefoot on chair near window at night. Lower all shades, leaving one at the Tanglefoot window raised about a foot. The early morning light attracts the flies to the Tanglefoot, where they are caught. (31)



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Without Injury to Foliage

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Sulphate of Nicotine

"Black Leaf 40" is highly recommended by experiment stations and spraying experts throughout the entire United States, also by Canadian experts.

Owing to the large dilution, neither foliage nor fruit is stained.

Black Leaf 40" is perfectly soluble in water; no clogging of nozzles.

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In tins containing 10 lbs. each, 2 lbs. each, and ½ lb. each.

A 10-lb. tin makes 1,500 to 2,000 gallons for Pear Thrips, with addition of 3 per cent. distillate oil emulsion; or about 1,000 gallons for Green Aphis, Pear Psylla, Hop Louse, etc., or about 800 gallons for Black Aphis and Woolly Aphis—with addition of 3 or 4 pounds of any good laundry soap to each 100 gallons of water. The smaller tins are diluted in relatively the same proportions as are the 10-lb. tins.

PRICES: In the United States, our prices for the respective sizes are as follows:

10-lb. tin, \$12.50; 2-lb. tin, \$3.00; ½-lb. tin, 85c.

IN CANADA, Dealers usually charge about 25% to 30% over the above prices because of the Canadian duty, etc. Consult your dealer about this.

THE KENTUCKY TOBACCO PRODUCT CO.

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LOUISVILLE - KENTUCKY

Fruit Crop Report

From Ontario there have been no adverse weather reports. In parts of the Maritime Provinces frosts were experienced on June 3 and 4. In British Columbia the weather has been admirable, the season being two and three weeks earlier.

APPLES

The season for apples will be a very satisfactory one. In Nova Scotia the later reports are very pessimistic. In Ontario there are certain sections where the ravages of tent caterpillar have reduced the crop. Spies are reported short in Brant and in Middlesex late varieties have not set well. In Quebec there has been much damage from caterpillars in unsprayed orchards, particularly in Huntingdon Co.

The general report from British Columbia is that a crop well above average will be harvested, particularly of the early varieties.

PEARS

The pear crop in Ontario will be a light one. In the southern counties the crop is reported fair, with Kieffers particularly abundant, but in eastern Ontario the crop will be an entire failure. In Nova Scotia over fifty per cent. of a full crop is expected. An excellent crop is reported in British Columbia.

PLUMS

The set in southern Ontario was very light and the crop will be below average. In the county of Lincoln, Japanese varieties are almost a failure and European sorts are light. Farther east in Ontario the plum crop is a total failure. In Quebec the native American varieties are good. Nova Scotia reports a heavy blossom. In British Columbia a greater crop than last year is expected.

PEACHES

So far as Ontario is concerned the reports remain practically the same as those which were published a month ago. With the exception of the Essex Peninsula and a slight scattering in Lambton county, the peach crop in Ontario is a total failure. In the Okanagan Valley of British Columbia reports on early varieties are still quite promising, and for the later varieties the general report appears to be that slightly over half a crop will be harvested. In the Kootenay Valley the peach crop is a failure.

TOMATOES

In Western Ontario, the acreage under tomatoes is the largest for many years. As a direct consequence of the peach crop failure, a number of growers planted tomatoes. There is danger that the supply of tomatoes will be much greater than the demand and that prices will be low. There has been a heavy planting of tomatoes in the Okanagan Valley in British Columbia.

CHERRIES

An abundant crop of all varieties of cherries is reported from the Niagara district and from the southern and western counties of Ontario. In Norfolk, Peel and Wentworth sweet varieties will yield only a light crop, but the report is extremely good for all other varieties. In eastern Ontario there will be a very light yield. Practically a full crop is reported from Nova Scotia. In the Okanagan district the set was not a particularly good one; in the Kootenay Valley the prospects are excellent.

GRAPES

Reports from the Niagara district indicate a crop between medium and large, and in many instances fully twenty-five per cent. larger than was harvested a year ago.—June Report of Fruit Branch, Ottawa.



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Latest Crop News

In Lake Ontario counties, apple crop double that of last season; cherries and plums a failure; caterpillars plentiful. Essex county—Peaches promise a full crop, with no leaf curl. Lambton county—An abundant crop of all fruits, except peaches. Annapolis Valley—A light crop between Bridgetown and Kentville; other districts better. Okanagan Valley—Apples, 25 per cent. increase; pears, 20 per cent. increase; plums, 15 to 20 per cent. increase; cherries and peaches, no increase over 1913. Pacific Coast—Strawberry crop badly injured by drought and softened by recent rains; raspberries good. Quebec—Prospects better than for several years past; strawberries came through the winter well, but drought is shortening the crop; slight winter killing of raspberries.

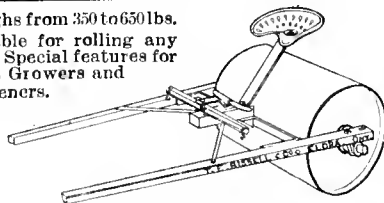
London, England, June 12.—All fruits damaged by frost in May. June weather unfavorable. Trade predicts 50 per cent. crop of apples and black cherries. Late varieties of cooking apples badly damaged. Pears and plums estimated at 75 per cent. Present season regarded as most unfortunate ever experienced.

D. Johnson, Fruit Commissioner.

British Columbia

The Hatzic Fruit Growers' Association has petitioned the B.C.F.G.A. to take some action in regard to fruit packages. The Canadian grower is compelled to ship in two-fifths and four-fifths quart baskets, while the foreign shipper can use any size he wishes. If American fruit is allowed to come on our market in smaller packages

Weights from 350 to 650 lbs.
Suitable for rolling any
soil. Special features for
Fruit Growers and
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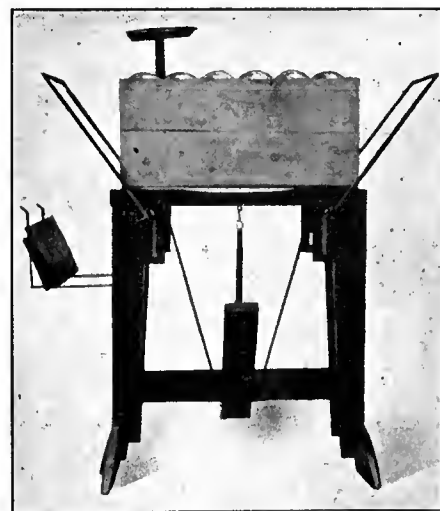
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HON. JAS. S. DUFF

Minister of Agriculture
Parliament Bldgs., Toronto

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If you pack apples in boxes, this machine will be a great convenience to you and will save you time and money. Write for price to

J. J. ROBLIN & SON
Manufacturers Brighton, Ontario

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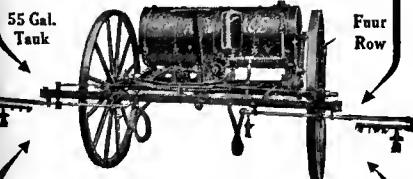
Not only for protection from bugs and blight but to increase the yield. Practical farmers and experiment stations have clearly proven that the yield is increased enough with every spraying to pay for solutions, time and labor many times over.

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There are special spray bars for many different crops, potatoes, tomatoes, pickles, cantaloupe, grain, cotton, tobacco, etc. This list includes a new one with drop nozzles that cover the underside of the



leaves as well as the top. A six-row bar enables potato growers to cover large acreages thoroughly and in less time.

An orchard attachment increases the value of these machines to the man who also owns an orchard.

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it should be so stamped by the inspector that the consumer will realize that there is a difference in size. The Hatzic grower complain bitterly against this unfair competition. Were allowance made for the difference in size of package, they would be willing to stand by the merits of the fruit.

It is estimated that 175,000 tomato plants were set out in the Summerland district. These yield as expected, they should total seventy-five car loads. Last season, total shipments were less than ten car loads. Strawberries are a heavy crop.

Growers in Mission City, Fraser Valley are elated over the success of their co-operated association. A steady market is assured, and the members are being paid cash f.o.b.

Eastern Annapolis Valley

Eunice Buchanan

On May 29 there were masses of fresh blossoms and orchardists were very jubilant over the exceptional promise of the orchards, especially old trees. Some young trees and old Kings, also those which were not sprayed much last year, did not promise so well, probably due to weakness caused by last season's aphid attacks. On June 4 there was a heavy frost. On June 3 there was one not so apparent just here but two miles distant it browned the apple blossoms. Until the fruit sets it is difficult to estimate the amount of damage caused by these frosts, but in orchards near rivers and on low-lying lands there is no doubt that the loss is very heavy, and the blossoms and seeds were blackened. The suddenness with which the flowers went made one feel that we had lost something. On "Blossom Sunday" everything had gone, with the exception of late varieties which had not opened.

An optimistic forecast of the apple crop for 1914-15 is about one million two hundred and fifty thousand barrels for Nova Scotia, but it is likely that this estimate will be cut down to one million barrels. After the frost in 1910 an old gentleman remarked that nature's thinning made good fruit and good prices, and he hoped that the next year he would have another frost to "help him out."

Raspberries were badly winter-killed, also roses and other perennials. The strawberry blossoms have suffered after the June frosts. Tomato plants which were frosted soon began to send out new leaves in case where the larger frozen leaves were cut off. Cherries have set well, and currants have had an abundance of blossom. A new and big demand has arisen at nurseries for currant and gooseberry bushes.

In spite of the dry time, garden seeds sown on May 15 have come up splendidly. Fortunately we covered up the tender things before the frost, but even then some of the beans were frozen through the sacks. It is better not to let the covering touch the plants when trying to protect them from frost. An orchard meeting is to be held at Mr. R. S. Eaton's, Kentville, on June 26 to demonstrate the control of the bud moth. Prof. Brittain, Prof. Blair, and Mr. George Sanders will address the meeting, for which the railway will run special trains.

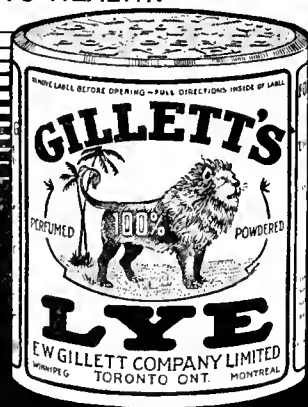
As potatoes are now allowed to be exported to Bermuda, if accompanied by a "certificate of health" from the Nova Scotia Government, the officials, owing to the expense of inspection, have decided to charge three cents per bushel, but would like to hear the opinions of farmers interested.

So far we find no trace of black spot.

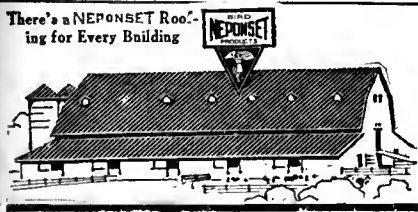
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Recent Bulletins

"Cucumber Rot" is the title of Bulletin 121, issued by the Florida Agricultural Station.

Maine Agricultural Experiment Station, Orono, Maine, issued Bulletin 225, entitled "Currant and Gooseberry Aphids in Maine. The University of Nebraska, Lincoln, Neb., has published Bulletin No. 142, entitled "Vegetable Gardens on Irrigated Farms in Western Nebraska."

The Ontario Department of Agriculture is distributing the annual reports for 1913 of the Ontario Fruit Growers' Association, and of the Horticultural Societies of Ontario. The annual report for 1914 of The Fruit Growers' Association of Nova Scotia is being distributed. Copies may be obtained from the Secretary, Manning Ells, Port Williams, N.S.

The Division of Horticulture of the Department of Agriculture, Ottawa, has published Bulletin No. 77, by W. T. Macoun, Dominion Horticulturist, and the Superintendent of the Branch Experimental Farms and Stations. It is entitled "Summary of Results of Horticulture, 1913."

The Manitoba Horticultural and Forestry Association has commenced the publication of a monthly bulletin which will be known as The Manitoba Horticulturist. It is to be devoted to the better growing of trees, fruits, vegetables and flowers in Manitoba. Membership in the association will include a free subscription to The Manitoba Horticulturist.

Lambton District

This was to have been a red letter year among peach growers. The large plantings of peach trees made three years ago are now bearing the first crop. The heavy winter-killing has blighted hopes for a record yield, but the crop will be fair. The drop was heavier than expected.

In Thedford, Arkona, and Forest a big crop of apples is expected. Strawberry and raspberry acreage has increased by forty acres. Currants and gooseberries are being introduced so the local association may be able to ship cars of mixed fruits. Heavy fall planting of small fruits is expected. At Arkona the crop is estimated at 20,000 baskets of plums, 3,000 baskets of peaches, and 40,000 barrels of apples.

The Lambton County Council is cooperating with the District Representative to stamp out San Jose Scale, which has made its appearance in the south of the county. A sum of money has been voted for the work.

New Books on Orcharding

A splendid book that deals with all the phases of apple orcharding, has just been issued by the Lippincotts. This new book is one of the series of Lippincotts' Farm Manuals. It is compiled in an attractive style, on good paper and is profusely illustrated. The matter is so arranged that any particular line of information can easily be found. Each chapter is reviewed in a series of questions which makes the book suitable as a student's text. The author, Prof. F. C. Sears, of the Massachusetts Agricultural College, is a thorough expert in orcharding, and anything that comes from his hand is of the best.

We are not half careful enough in the handling of our fruit. It is often marked and bruised before it goes into the barrel.—W. F. Kydd, Simcoe, Ont.

The successful fruit grower must first have a liking for his work, he must understand something about the laws of nature, he will study his soil, he will have a knowledge of insects and fungus growths, he will know what varieties are suited to his soil, climate, and market, and he will be honest in his dealings.—C. Young, Richard's Landing, Ont.

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IF YOU WANT to buy a farm consult me.
I HAVE some of the best Fruit, Stock, Grain and Dairy Farms on my list at right prices.
H. W. Dawson, Ninety Colborne St., Toronto.

GOLDEN AND THREE-BANDED ITALIAN AND Carniolan Queens, ready to ship after April 1st. Tested, \$1.00; 3 to 6, 95c each; 6 to 12, 70c each. Untested, 75c each; 3 to 70c each; 6 or more, 65c. Bees, per lb., \$1.50. Nuclei, per frame, \$1.50.—C. B. Bankston, Buffalo, Leon Co., Texas, U.S.A.

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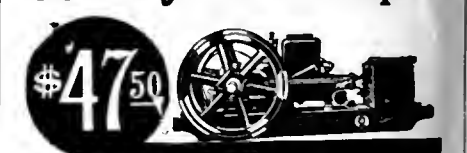
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Expert Box Packer (Apples) to manage central packing house for Thedford Fruit Growers' Association. Good wages to hustler with experience; no other need apply. Duties to commence September 1st.

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PETERBORO, ONT.

The Canadian Horticulturist

Vol. XXXVII

AUGUST, 1914

No. 8

Growing Grapes Under Glass

A. J. Logsdaile, B.S.A., Central Experimental Farm, Ottawa

GREENHOUSES, in the form of conservatories or forcing-houses are no longer exceptional luxuries. Many of our new country homes and the larger of our suburban residences now possess some such adjunct to the house. These greenhouses are evidence of the increasing appreciation and interest of the public in horticulture. This growth of interest is particularly noticeable in amateur circles. It is responsible for many new and ambitious schemes, which are materially broadening the whole field of horticulture.

One of the recent ideas is that of a fruit or orchard house, or a vinery. It is with respect to this latter phase, namely that of the vinery, that the following remarks have been written. Such suggestions as may be given in this short article have been written in the hope that they may be of some assistance to amateurs who are thinking of growing some of the delicious European grapes (*Vitis vinifera*) for the first time.

The growing of grapes under glass in England is an old, well established, and extensive business. Moreover, it is in the hands of men who as horticulturists are second to none, and whose experience with the varieties they are now growing can be of material assistance to us in our endeavors along this line. The amateur in making a selection of varieties for himself is liable to be misled if his choice is guided solely by the descriptions of the fruit qualities to be found in catalogues, for many of these varieties are little grown but are still maintained because of their marked adaptability to certain conditions.

As this crop is grown under artificial conditions, the matter of climate is not so pronounced as is the case with imported fruits grown in the open; the chief differences, perhaps, being those of less atmospheric humidity, and greater light and heat intensity. Both of these conditions can be greatly modified by more frequent "damping down," and by the use of a light shade sprayed on the glass.

A list of the varieties of *Vitis vinifera* would be legion, but the amateur can console himself with the knowledge that perhaps seventy-five per cent. of the

total glass crop of Great Britain is produced by only six or eight varieties. These varieties have proved themselves to possess in a marked degree the characteristics of vigor, prolificacy, and quality. The varieties in question are:



Alicante Grapes. No. 1

This is a young vine in a twelve inch pot. Note the method of training. It is carrying nine bunches of grapes and is somewhat heavily loaded to obtain the best results.

Black Hamboro or Black Hamburg, Muscat Hamboro, Alicante, Gros Colmar, Gros Maroc, Foster's Seedling, Madresfield Court, and Muscat of Alexandria. The last-named is liable to be somewhat shy in setting fruit under certain conditions.

The best way to grow the European grape is in a thoroughly drained and carefully prepared vine border, built within the greenhouse and along its sides. The young vines should be planted at least twelve inches from the wall, and if two rods are to be grown from each vine, the vines should be planted eight feet apart, to allow two feet on either side of each rod for the growth of the laterals.

From a dormant condition the vines should be induced to break into leaf gradually. Undue haste at this time

often spoils a crop. If budding out is slow or uneven, this may be remedied by laying the rods on the ground and syringing more frequently, or syringing with tepid water.

The average length of time taken to grow a crop of grapes from that of starting the canes into growth till the fruit is ready to cut, is usually from five to six months. It depends upon the time of year the crop ripens, after which the vines require a rest, and an opportunity to ripen the wood made. The grape crop is really a quick crop when compared with the crops of other hard-wooded fruits, but it requires continual attention. Successive annual crops are obtained only by experience, often of a most disheartening nature.

The writer spent several years with one of the largest commercial grape growers in England, who had considerably more than twelve thousand linear feet of glass in grapes alone. Annually these vineries would produce crops of perfect fruit, and varying but little in yield from year to year. The estimated standard of yield for such varieties as Gros Colmar, Black Hamboro, and Alicante was one pound of fruit to each linear foot of vine rod. Thus a vine bearing two main rods each eighteen feet in length, making a total rod length of thirty-six feet, would be expected to yield thirty-six pounds of fruit.

During the time of flowering, the setting of the fruit is greatly assisted by gently tapping the canes once or twice a day. Sometimes a rabbit's tail or soft camel's hair brush is used to distribute the pollen, and a third expedient is that of dusting the blossoms with Pampas Grass bloom, and so doing the duty of Nature and the bees; this has been found to produce the desired result.

ENRICH THE SOIL.

The grape is a heavy feeder or, in other words, to produce best results commercial fertilizers require to be liberally used. In connection with the use of commercial fertilizers though, the motto of the amateur should be "festina lente." A little at a time given regularly will produce far better results than liberal applications at distant dates. The grower should bear in mind the different



A Young Foster Seedling Grape. No. 2

This grape is also in a twelve inch pot. It is carrying seven well filled bunches of fruit. This is a more satisfactory method of training than that shown in the first illustration.

requirements of the grape at different stages of its growth. During the first two months leaf growth is required, and the use of a nitrogenous manure, such as Ammonium Sulphate, is beneficial. Nitrate of Soda is not quite so safe to use, especially in the case of vines growing in pots. Ammonium Sulphate is best applied in solution at the rate of a quarter of an ounce to each gallon of water, twice a week. With vines growing in a border, the application is somewhat stronger as watering is not so frequent as is the case with pot-grown vines.

When the fruit clusters appear, the tips of the laterals are usually nipped off, leaving two leaves beyond the fruit cluster. During the flowering period, and while the fruit is setting, feeding is generally withheld, though some growers, with marked success, use a little Muriate of Potash (KCL) at this time. With hard-wooded plants in pots, Muriate of Potash should be used with care. When the fruit has set and is about the size of small garden peas, sufficient leaf and wood growth should have been obtained and the further use of nitrogenous manures is apt to be harmful to the full maturity of the fruit.

The bunches of fruit at this period are thinned by means of fine-pointed scissors. The smaller berries are removed and the remainder are thinned in tiers so that each berry will have room to develop to its full size, and the whole bunch ultimately develop the form of a symmetrical cone hanging point downwards. At this time the energies of the

vine are engaged in the development and maturing of the fruit, and the feeding of phosphates and potash in available form will quickly show beneficial results. When the fruit begins to color the proportion of potash may be slightly increased.

PRECAUTIONS.

A careful watch should be kept for any appearance of red spider. This dangerous pest can generally be controlled by syringing and maintaining a humid atmosphere.

The Sod Mulch vs. Cultivation

AN interesting controversy is now engaging the attention of apple growers across the line. A few months ago a bulletin was issued by the Geneva Experiment Station giving the results of sod vs. cultivation on the Hitchings' orchard of western New York State. In this orchard the trees in sod came out ahead of those under cultivation. The bulletin explains at length the exceptional conditions that made the sod mulch method a success in that particular case. Later an article appeared in *The Country Gentleman* dealing with the advantages of the sod mulch, particularly for hilly land.

In the article mentioned reference was made to the work of the Ohio Experiment Station to solve the problem of successful orcharding on the hills of southeastern Ohio. There the great difficulty is to prevent the land from washing. The sod mulch system proved to be the solution. The manner in which one particular orchard was treated is summarized in the following paragraph.

"From those hills the humus had been farmed out and in summer the land dried out as hard as a board. The soil was so poor that cover crops would not grow. Some trees had not made any growth in fifteen years. In 1910 the trees were mulched with straw and in 1911 each tree got five pounds of nitrate of soda and five pounds of acid phosphate. They made one and a half feet of growth. In 1912 and 1913 one thousand pounds per acre of a mixture of two parts nitrate of soda, two parts acid phosphate and one part of muriate of potash was applied. Another orchard was mulched with straw but received no fertilizer. It yielded only one-fifth the crop of the fertilized orchard. But straw was expensive so the land was allowed to go to grass which was then cut and allowed to lie on the ground. This was effective at the same cost as straw at six dollars a ton."

Continuing, the writer of the article states: "The experimenter in the case of the Hitchings' orchard says in his bulletin that the grass mulch trees were hungry. On the other hand he gave the

When using commercial fertilizers it is well to remember that underfeeding is a far safer course than liberal feeding, as an unduly heavy application may prove fatal. Lastly, certain varieties are very subject to Sun-scald and in this instance the variety "Lady Down Seedling" may be particularly mentioned. When any evidence of scalding appears on the berries, the shading should be increased, if this can be done without unduly hindering other vines in the same house.

cultivated trees nitrogen in the form of clover which he plowed under. He didn't even up the race by giving the mulch trees some of the nitrogen they needed. Nor did he try any legume as a form of grass mulch; he let it go at orchard grass. There are many legumes that would be suitable.

"Available plant food is the vital thing; cultivation is a detail, not a fundamental. Available plant food may come at times without cultivation and by easier and cheaper methods. Cultivation is merely one way of feeding the tree. Give a tree plenty to eat and it will do lots of things—carry apples through moderate freezing for instance, and also weather surprising drought.

"On sandy soils the mulch system might be a failure and in dry farming areas cultivation is a necessity. But the sod mulch has many advantages. Mr. Hitchings manages the tillage end of one hundred acres of apples easier than he



Black Hamburg Grapes. No. 3

This vine is carrying only four bunches. In weight of fruit they will probably equal the nine Alicante clusters. In quality they will far surpass them in flavor, size and appearance.

could plow five. Along in June and July there come wet days when the teams could do nothing else. He sends a man with a mowing machine into the orchard and another with a scythe to trim around the trees. This fits into a system of farm management that will appeal to many."

THE OTHER SIDE

The other side of the question is given in the Geneva bulletin. The Hitchings method is simplicity itself. The land remains in sod indefinitely, the grass is cut for a mulch once or twice a season, and is left on the ground. Three plats were included: A lies on the floor of a valley and is comparatively level; B lies on the lower part of a rolling hill; C is higher up on the hillside.

In each plat half the land is in tillage and half in sod. All appear to be well supplied with phosphorus, potash and

nitrogen; B and C receive the hillside seepage. All parts were given the same treatment except for tillage. All the factors favor the sod mulch method. The tilled plats were plowed early in the spring and cultivated from seven to eleven times, a cover crop, usually clover, following. In the sod plats was a mixture of orchard grass and blue grass.

Mishaps and slow maturity prevented crop yields in plat A. The sod trees yielded a little less than four bushels a tree and the tillage bore a little more than three. The difference in favor of the former was due to a greater number of apples and not to increased size.

The cultivated trees in the valley did better comparatively because there was more moisture on the hillside. The tilled trees always had darker foliage although the amount of growth was about the same. The cost for the tilled plats was

\$16.28 an acre and for the sod plats seventy-two cents an acre.

In conclusion while tillage is the best method of caring for the great majority of orchards, yet there are peculiar conditions under which the Hitchings' method may be used advantageously:

First—On steep hillsides, where the land washes badly.

Second—On land covered with rocks, trees may stand best in sod.

Third—the Hitchings' method is suitable only for soils of sufficient depth; on shallow soils it will usually prove a failure.

Fourth—Soil must be retentive of moisture. Tillage is to be preferred for land that suffers from drought.

Fifth—Since the cost of caring for a mulch orchard is less, a greater acreage may be handled at the same cost and the net returns be as large as in a smaller tilled orchard.

Fire Blight and How to Fight It*

Prof. W. H. Brittain, Provincial Entomologist, Nova Scotia

FIRE blight is a disease that is of bacterial origin. In this respect it is comparable to diseases which affect men and animals, such as cholera, blood poisoning, tuberculosis etc., and it may become epidemic in character. The organism which causes this disease (*Bacillus amylovorus*) is extremely minute, measuring only one twenty-five thousandth of an inch long, and one-forty-five thousandth of an inch wide. When carried to the blossoms this germ is capable of multiplying rapidly in the nectar of the flower and from thence spreading downward and destroying the spur. When twigs or shoots are pierced by insects bearing infected material the organism grows and multiplies, feeding upon and destroying the tissues of the inner bark and cambium. It does not, however, winter over in the infested shoots, but in so-called "holdover" cankers upon the limbs or trunk.

SYMPTOMS.

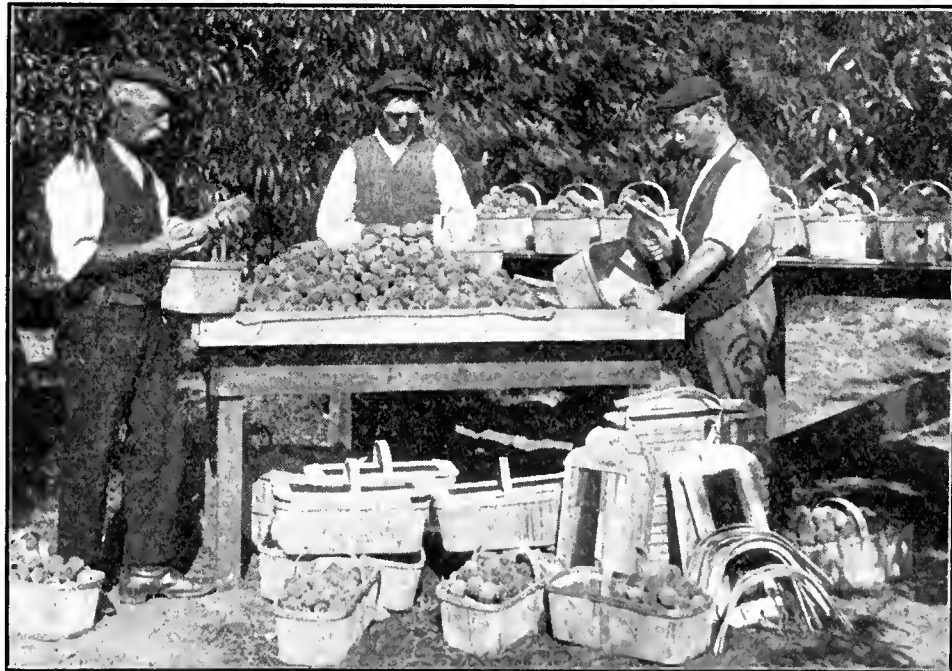
The disease first appears as a blight of the blossoms. Shortly after blossoming time affected blossoms instead of developing into fruit will be seen to wilt. Gradually the leaves surrounding the fruit cluster also begin to show signs of disease, becoming brown and dead, until the whole fruit spur looks brown and scorched. A careful examination of diseased spurs may now show small heads of whitish or yellowish liquid oozing through the bark. This liquid gradually hardens in the air and becomes dark red or brown in color. Microscopic examin-

ation of this exudate reveals the fact that it is literally swarming with the germs of the blight. This form of the disease in blossoms and fruit spurs is known as "blossom blight."

Shortly after this form is noticed the disease will begin to appear in the new twigs of the current season's growth. Tips of affected shoots will turn brown,

the bark will take on a moist, water-soaked appearance, and the leaves will become withered and brown. Where the disease is active, drops of the gummy exudate will be seen oozing from the bark. This form of the disease is known as "twig blight."

In some cases the disease will not stop here but will spread down affected shoots



Marketing the Peach Crop. Orchard of D. F. Hamlink, Huron County, Ont.

Mr. Hamlink seems to have proved that peaches can be grown successfully in his section of Huron county. He has twenty-five acres of peaches two and three years old, as well as five acres of trees that have been bearing for the last eight or ten years. The trees are doing well. Mr. Hamlink has not lost over half a dozen trees by being winter killed. On his three year old trees he will have about twenty per cent of a crop this year.

*Extract from an address delivered at the recent annual meeting of the United Fruit Companies of Nova Scotia.



Marketing Early Tomatoes. Messrs. M. O. Field & Sons, Grimsby, Ont.

into the main limbs and trunk. Here it may form large cankers and through cracks in the diseased bark, the yellowish liquid will ooze in large drops. Large limbs or even trunks may be girdled in this way and destroyed. In the east this form of the disease is most common in pear trees, but in the northwestern States and British Columbia it frequently assumes this form on many varieties of apples and causes immense loss. In years of epidemic it may spread like a blighting flame from orchard to orchard carrying destruction with it. While it is too early to say how this disease may act under Nova Scotian conditions, it does not seem probable that the disease will assume this virulent form. Observations so far seem to show that usually the injury is confined to the blighting of the current season's growth, which, while it does not seriously injure the tree, may totally destroy the crop.

In the summer when the tree begins to ripen up its wood, holdover cankers are formed on limbs and trunk at the base of diseased shoots. These have the characteristic water soaked appearance when fresh and are usually separated from the healthy tissue by a crack or fissure.

The forms of the disease then are—blossom, twig body and holdover blight. Body blight is the most serious form of the disease, but does not appear to be prevalent in Nova Scotia. The blossom blight, which destroys the crop, but does not kill the tree, is the form we have to fight.

SPREAD OF THE DISEASE.

The principal agent for the spread of blight is the bees, that carry it around from flower to flower at blossoming time. Aphids, leaf-hoppers, plant bugs and

other sucking insects are attracted to the sweet juice that oozes from diseased tissue and becoming affected from this source, are important carriers of this disease. In Ontario it has been found that the Fruit Bark Beetle (*Eccoptogaster rugulosus*) is often responsible for carrying the disease into the body of the tree. Sap suckers and humming birds may also have something to do in carrying the disease from place to place. One of the most potent and dangerous methods of blight dissemination is by the use of infected pruning tools. Persons who cut out diseased limbs without disinfecting after each cut are liable to aggravate the disease instead of controlling it.

TREES AND VARIETIES AFFECTED.

Besides the apple, pear and quince, certain wild and ornamental plants are known to be affected. The mountain-ash, the hawthorn and the shad bush are the chief of these. A disease known as "wither tip" of poplar is often mistaken for fire blight, but bears no relation to it whatever.

While all varieties of apples may be attacked, they present a very wide variation in their degree of susceptibility to the disease. So far we have found the disease is most prevalent on the Nonpareils though it has also been noticed on Gravenstein and Baldwin. Further investigation will doubtless show other varieties attacked.

CONTROL OF THE DISEASE.

The disease may be partially controlled by killing the insects that spread it about. While we cannot hope to get at the bees, we can destroy the others by the use of Black Leaf 40, either alone or with flour paste, applied when the leaves are about the size of mouse ears. This

method, however, is and must always remain only a partial one. The only cure for the disease is cutting out the diseased limbs. This should be down to about a foot below the diseased part, and the tools used in cutting must be disinfected after each cut. For this purpose corrosive sublimate is used in the strength of 1-1000 of water. Tablets can be obtained at the drug store, one tablet of which dissolved in a pint of water will give the desired strength. This must be used in a wooden or glass vessel as it corrodes metals. The most convenient method is to use a small glass bottle or flask which can be kept in the pocket. Attach an ordinary bath sponge to the wrist by a string and keep wet with liquid from the bottle. By this method the pruning shears can be swabbed off after each cut without loss of time, and both hands are free to be used when necessary. In cutting out hold-over cankers, the bark for two or three inches around the diseased area should be removed and after drying the wound should be painted over with coal tar or white lead. For disinfecting purposes, formalin, one pint diluted to three gallons, may be substituted for corrosive sublimate.

Careless cutting is worse than useless, and puts an orchard in worse shape than before. It must be understood that this disease cannot be destroyed by spraying. No more than a diseased bone can be cured by the application of an ointment to the skin, can this disease be destroyed by sprays. Surgery is the only remedy, and must be fearlessly done. Better cut out a little too much at first, than to have to continue the operation indefinitely. I know of nothing in the whole realm of plant pathology that offers such opportunities for cooperative effort as in the control of Fire Blight. With other diseases you can spray and obtain good results regardless of your neighbors, but with Fire Blight your work will be rendered useless if a source of infection exists near by.

Injury from Root Killing

Editor, The Canadian Horticulturist,
—We are getting numerous inquiries concerning trees which leaf out and then die more or less suddenly. These are the customary symptoms of root killing, although a great many fruit growers do not seem to be aware of this form of winter injury. We have investigated a number of cases of this kind, and always with the same results. If any of your correspondents have been losing trees in this way, we shall be glad to send a man to investigate the same and report. At a later date we shall be glad to inform your readers more fully as to the results of our studies.—J. W. Crow, O.A.C., Guelph.

Seasonable Paragraphs for the Gardener

DON'T stop cultivation in the flower or vegetable garden now. Keep the soil loose and the weeds out.

That the garden may look its best, pick the flowers constantly; pansies, sweet peas, poppies, and roses especially. The best time to pick flowers is in the morning and evening when the sun is not bright and the plants are fresh.

Trim the hedge, but do not give a severe pruning.

It is time to make up lists of tulips and other bulbs that are to be planted in quantity this fall. Send to some of the large importers of bulbs for their catalogues. Tulips, crocus, and daffodils do well outside.

Blight, a fungus disease, is liable to cause trouble this month. For the large garden, spraying with bordeaux is the best remedy. The most common formula is four pounds of lime, four pounds of copper sulphate, and forty gallons of water. Dissolve the bluestone in a fairly large quantity of water, slake the lime separately, mix the two solutions, and dilute to required quantity.

For the small garden the most convenient remedy for fungus diseases is to powder the leaves with flowers of sulphur or a mixture of flowers of sulphur and lime.

Would you enjoy the novelty of a few strawberries during the winter? Put some plants in pots, plunge the pots out of doors, and bring them into the house in the fall.

The old blackberry and raspberry canes should be cut as soon as fruiting is over. At the same time the young growth should be pruned back to a convenient height, say three and one half to four feet. Next year's crop will be increased by judicious pruning.

August is the insect month. Dusting the plants with lime is the safest treatment for cabbage worm; poisons are too dangerous. Arsenate of lead is becoming popular as a poison spray; it sticks to the foliage well.

Cultivation of bush plants should soon cease. If you have a fair-sized patch, it is good practice to sow a cover crop; rye is suitable. Another plan is to give a mulching of manure.

Strawberries may be planted now if the soil is in good condition and moist. For raising very choice berries, one method is to set the plants one foot apart each way and trim off all runners. Every four rows a row may be skipped to leave a path.

Red raspberries are propagated by suckers which come up around the old plants. These may be taken up in the autumn, heeled in during the winter,

and set out in a permanent bed the next spring.

Have you ever considered the advantages and pleasure that even a simple, cheap greenhouse offers? Read carefully the articles in this special greenhouse number.

If you have a hotbed, cucumbers can be sown now and they will fruit in early winter.

The late sown crops should be given every opportunity to grow. Thin properly and cultivate.

If you intend taking a crop of strawberries from the old bed next year, cut off the runners and trim the plants a bit.

Give the garden every opportunity to do its best by applying nitrate of soda or hen manure.

Bring carnations indoors to pots, boxes or benches in the greenhouse.

Rubber plants can be increased now by binding some moss about the stems and keeping them moist. When the roots form cut the stems below the moss and pot the new plants.

Autumn blooming crocuses, if planted now, will bloom this fall.

Bulbs of Madonna lily, a beautiful, hardy, white lily, should be planted. They will make a small growth this fall, but no injury from frost will result.

Black raspberries and dewberries are propagated by layering. The tips of the canes are bent over to the ground and covered with dirt to a depth of about four inches as soon as the fruiting season is past.

Celery is a moisture-loving plant. See that it gets plenty of moisture.

If you have not a cold frame or a hotbed, now is a good time to build one. Vegetables planted in the cold frame now can be enjoyed in the late fall. Next spring the cold frame can be utilized as a hotbed.

Geraniums for winter flowering should now be potted. Plunge the pots in the garden where they may remain till early in September. Keep all bloom buds picked off in the meantime. When plunging the pots out doors, place a flat stone underneath them so earth worms cannot get into them.

Seed of pansies should be sown early in flats for planting out in cold frames in September to winter over in the greenhouse or conservatory. These will flower early in spring.

If you have not yet done so, now is a good time to plan the flower arrangements for next season.

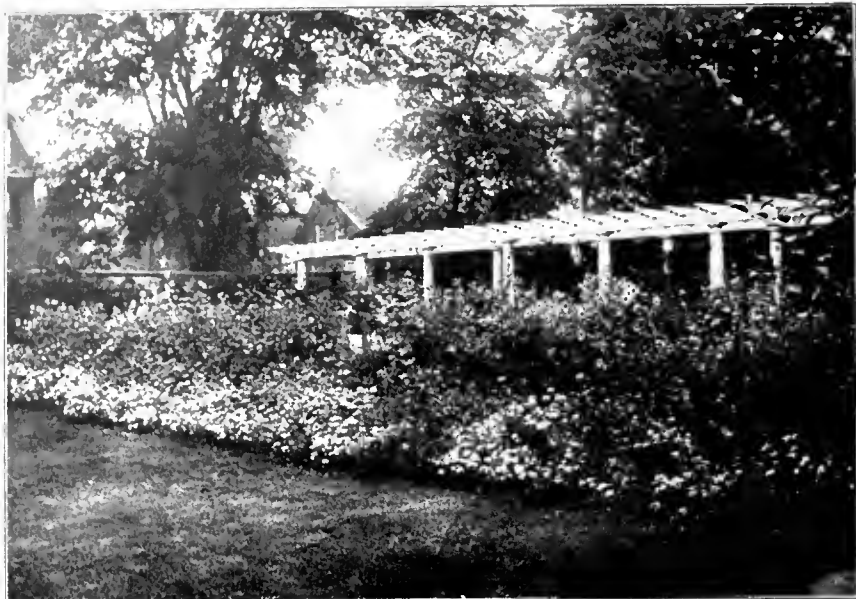
To rejuvenate old geraniums that are in pots, cut back where the stems are getting woody. Keep the soil about them moist. When there are signs of growth, remove from the pots, cut the roots back by half, and put in smaller pots. When five or six leaves have developed, repot in large pots.

It pays to put vegetables and fruits in clean, neat and attractive packages that are to go on to the market. Two small well-graded and well-packed packages often bring double what the same amount will bring in a large package. It does not cost much more to pack in the smaller package.



The Home of Dr. Geo. Bennett, President St. Thomas Horticultural Society

This residence secured third prize for floral beautification in a contest conducted last year by the Society



A Modern Pergola in the Garden of Mrs. MacLaurin, Ottawa, showing a Blaze of Annuals in the Front

Late varieties of celery can be safely blanched with soil. They do not rust as readily as the early varieties. Allow no soil to fall into the crown of the plant. Keep hilling the plants up gradually as they grow.

Treatment of Calla Lily

F. Wise, Peterboro

My Calla Lily is a young plant and is growing nicely, but has not flowered. New leaves are thrown up constantly, but the old leaves continually turn yellow and wither up, so that it never has more than three or four leaves on it at once. I have had the plant a little more than a year. I often stand it in hot water, and sometimes water it with fairly hot water, always with warm. It was re-potted in the early fall, and I occasionally give it sterlingworth plant food. It looks very well, if it were not for the yellow leaves—Miss C. M.

You are probably killing your lily with kindness. The treatment for calla lilies after they are potted up in the fall is to give them a good position in a sunny window and water them with tepid water; this does not mean hot water. Give an occasional fertilizing with some good plant food. Be careful not to overdo the latter. Do not give any fertilizer until you are sure that the plant has good root action.

The hot water treatment you have been giving may have caused a soft, unhealthy growth, or this may be caused by worms in the soil. If the latter is the case, it would be better to turn out the pot and stick a hatpin through the soil here and there, when the worm or worms will make their exit. Another plan is to give lime water occasionally, as this is helpful to the plant.

It is a good test of the quality of a garden bed to be able to dig in it with your hands quite easily.—H. M. Speechly, Pilot Mound, Man.

Gardening With a Lead Pencil

H. Gibson, Tuxedo Park

AUGUST is a month when a good deal of useful gardening may be done with a notebook and pencil. Many amateur gardeners start activities in early spring by ordering their packages of seeds from the seedsmen's catalogues without having any knowledge of what the resultant plants will be like. In making up the garden list the beginner often bases his choice on the fascinating illustrations and romantic names of the plants. Thus it is that many plants of less value and beauty remain comparatively unknown.

There is, however, a more practical way than depending upon the seedsmen's catalogue. It is by the notebook and pencil method. The time to get acquainted with the future inhabitants of the garden is during the flowering season. In your own neighborhood there are gardens containing treasures with which you can become acquainted. Visit them with an open eye and an inquiring mind, notebook in hand.

Rule the pages with column spaces for common and botanical names, height, color, flowering period, location as to sun or shade, annual or perennial character, planting time, and cultural methods. Your neighbor's experience, coupled with your own, will help to fix the information in your mind.

Should your own locality not offer ample scope, visit a nearby nurseryman. There you will find a wealth of material for your notebook, with the additional advantage that you may order plants or seeds on the spot.

The adoption of such a scheme will avert many a mistake and disappoint-

ment. By it one can save at least a year or two in the attainment of a satisfying measure of success in gardening.

Iron Sulphate for Dandelions

In the June issue of The Canadian Horticulturist some methods of destroying dandelions were given. During the summer of 1913, Prof. J. E. Howitt, of the O.A.C., conducted spraying experiments with the use of iron sulphate. Commencing early in May, one-eighth of an acre of lawn was sprayed before the first of August. In all two hundred and sixty-four pounds of the sulphate was used at a cost of one cent a pound.

This portion of the lawn was quite weedy and after the six sprayings had been given, fifteen hundred dandelions were spudded from the one-eighth of an acre. But from an adjoining square yard which had not been sprayed, three hundred and fifty plants were taken, indicating that the iron sulphate did good work. The data shows that the initial outlay for material is fairly large, twenty dollars an acre, but a satisfactory job would be cheap even at that price.

Supports for Sweet Peas

A. V. Main, Ottawa, Ont.

The question of what is the best support for sweet peas deserves some thought. Supports that are good, cheap and effective, and that will ensure economy in labor, will appeal to most of us. The oldest method of all, the use of branches, is almost obsolete. The best substitute is wire netting five to six feet high. It is cheap, durable, and can be stored away easily.

Where wire netting is used no permanent fixture is essential. The netting, when necessary, can be cleared away easily and free access to the ground be secured for fall preparation. As the peas climb, strands of binder twine can be run up and down the row to keep them to the netting.

Cement Flower Bed Border

T. J. O'Flynn

The following plan for making a cement border around a flower bed has worked well with me. Take a hose or rope and place it on the sod with the desired curves. Then with an axe or any sharp instrument cut a trench four inches by four inches to conform with the desired shape. Use cement and gravel in the proportion of one to four, and fill in the trench, being careful not to have it quite as high as the sod. Dig the sod on the inside of the trench when the cement hardens.

This will reduce the labor of keeping the edge of the bed looking nice, as the lawn mower can be run around on the cement. The cement need not appear. A little earth can be drawn over it.

Accomplishments of the High Park Horticultural Society

A FEW years ago the High Park district was a Toronto suburb. There were vacant lots with their accompaniment of refuse and weeds. Avenues of trees were unthought of and the vision that the section might become one of the finest residential districts of Toronto, was entertained by but few.

But Toronto grew. It grew with rapidity. It became evident the High Park section was to become a place of homes. Soon the idea was conceived by a few enthusiasts that by concerted action and a little planning it would be possible to ensure the homes that were yet-to-be being planned on lines that would ensure the whole district being made one of the beauty spots of Toronto. And thus was born the High Park Ratepayers' Association.

This was several years ago. The Association, at first, devoted its attention to many lines of work. These included the proper opening up of the district, the attracting of a desirable class of residents, the laying out of the streets. It was realized that this was not sufficient. A horticultural committee was organized. A campaign was launched for the planting of gardens, the laying out of lawns and trees and the general embellishment of the homes of the district. Out of this committee has grown the High Park Horticultural Society.

The transformation that has been effected within a few years borders almost on the miraculous. Hundreds and hundreds of beautiful homes have been erected. A desire for the beautiful in nature has been created which has permeated the whole district until the neighbors vie

with each other in doing what they can to advance the cause in which all have shown so much interest.

Most of the improvements from a horticultural standpoint have been effected within the past four years. In 1911 a campaign was launched to interest the people in the matter of improving the lawns, gardens and general appearance of the property in their district. Prizes were offered for the best kept lawns, gardens and window boxes. That year Andrew Dods was the successful prize winner in the garden competition. The following year the honor was won by Wm. Mormann, Rideout Street. In addition to the regular prizes a resident of the district presented a fine cup for competition. These competitions have been continued each year with splendid results. In addition frequent exhibitions have been held within the past five years. Thus increased interest has been created. When one considers that most of the dwellings have been built within the past five years, the attractive appearance of this part of the city is remarkable. Many of the gardens would seem to have been established for years. A representative of The Canadian Horticulturist had an opportunity some time ago to visit High Park and see for himself the splendid work that is being accomplished. From among the large number of fine lawns and gardens noticed space will permit of only a few being mentioned. The endeavor has been to select a garden from a few of the more important streets and thus have the whole district fairly well represented.

One of the first residences we visited

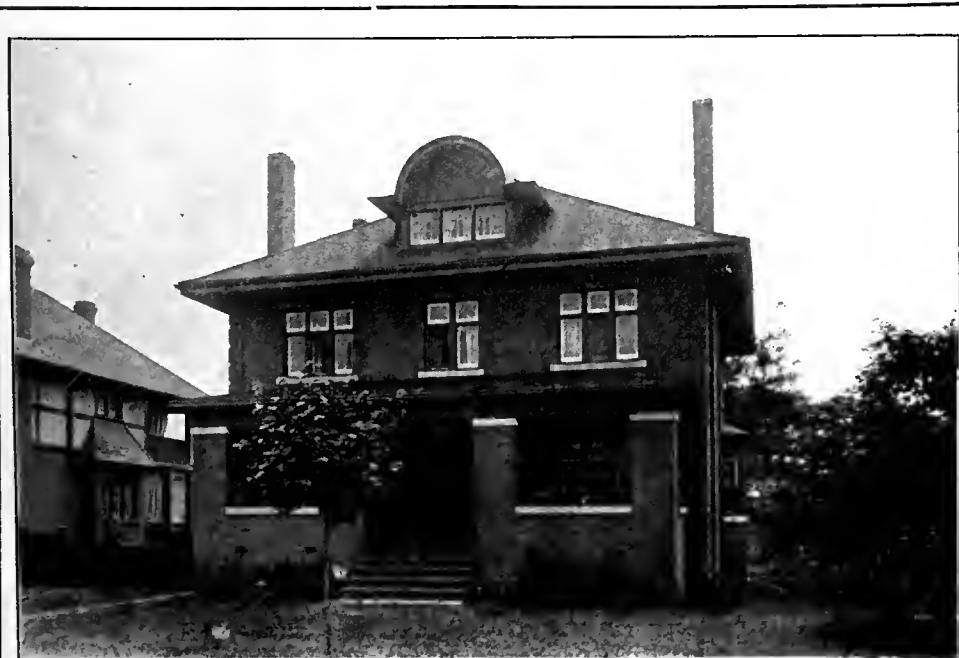
was that of Wm. Mormann, who in 1912 captured the first prize. A noticeable feature about Mr. Mormann's place is the absence of fences. Instead, privet hedges have been planted which are an improvement over the unsightly line fences so often seen. The stump of a tree which Mr. Mormann had occasion to cut down, had been put to good use by placing on it a box, three by four feet, from which hangs a profusion of German Ivy. Covering the house is some fine Ampelopsis. Hanging in the front porch is a nice flower basket and flanking the entrance and over the door is some fine Cobia Scandens. To one side of the house is a large pine tree. In this tree a box has been placed which a family of black squirrels have selected as their home. One of these squirrels has become so tame that Mrs. Mormann often feeds it out of her hand.

A UNIQUE IDEA.

Another feature of special interest was a high framework covered with wire netting and over which vines were growing profusely, which Mr. Mormann has erected alongside his neighbor's house. This will serve to hide the unsightly brick wall until the vines which his neighbor has planted have attained their growth.

A splendid lawn and garden is that of Major J. O. Thorne. The house is flanked on either side by a wide expanse of lawn, the borders and corners of which are planted to shrubs, roses and perennials. Shrubs and hardy perennials are also planted around the base of the house. At the rear and separated from the lawn by a privet hedge, is a fine kitchen garden. Around the garden are wire net fences backed by herbaceous borders. The kitchen garden proper is laid out in squares, Old Country style, with fruit trees planted in the corners of the plots. The tomatoes are trained on a trellis and pruned back to the spurs, the same as in greenhouses. To one side is the garage. When we consider that the garden had been only two years in existence, it was a splendid one.

A most energetic member of the society has been Hugh Johnson, 55 Radfow Street. His idea was to do away wherever possible with line fences. Facing the street his lawn is bordered with a Japanese ivy hedge. The house itself is well covered with vines, shrubbery and herbaceous plants, among them being some fine coladiums. Along the boundary lines are some handsome Norway maples. At the rear is a fine lawn with herbaceous border. A fine pine tree gives ample shade. A bird box has been placed well up the trunk, the entrance being large enough to accommodate a wren



A High Park Residence, that of Hugh Johnson, before Flowers had been Planted.—No. 1



Mr. Johnson's Residence, Showing Part of Improvements Effected by Means of the Planting of a few Plants and Vines.—No. 2.

but not an English sparrow. A sand pit gives ample opportunity for the children to enjoy themselves.

A NATURAL BEAUTY SPOT.

Probably the garden showing the most natural type of beauty was that of W. H. Reid, 94 Boustead Ave. Between the lawn and the street is a rough stone wall about two and one-half feet high. Behind this wall the earth is banked up and planted with roses and shrubs. Viewing the wall from the street one has the impression that flowers are growing on top of it. Leading under an archway a flag stone walk extends to the house. The house is well covered with vines, and an herbaceous border extends around the base. On the front lawn an old tree trunk about eighteen feet high, has been transformed into a fine ornament by being well covered with vines.

A WELL KEPT REAR LAWN.

At the rear of the house is a fine lawn flanked with herbaceous borders and containing a few fine shade trees. Grape vines well loaded with fruit were growing on the wire netting which constitutes the line fence. Between the house and the one adjoining is a vine covered archway which screens the rear door from the street. The neighbors in the house adjoining have adopted the general scheme and the two residences are in complete harmony.

A fine corner was that of H. E. Hurd, 16 Parkway Avenue. Facing the house was a crescent shaped lawn surrounded by a walk. In the centre was a fine bed of geraniums. Along the side street was a wrought iron fence, behind which was a fine collection of border plants. In the extreme outer corner of the lawn was a

small bed of most attractive appearance. Mr. Hurd's son, who was responsible for the fine improvement made in this garden, has since died. He was very enthusiastic in improving the appearance of the High Park district.

On Roncesvalles Avenue, a neat little garden was that of Wm. Barber. The lawn was enclosed with an iron fence behind which was a fine border of herbaceous plants. A bordered walk leading under an arch, extended to the rear of the house. A few stone urns on the lawn added to the general attractiveness of the scene.

Another nice garden was that of W. McTavish, 440 Indian Road. Space does not permit us to describe this garden more fully. Suffice it to say, however, that the efforts of residents of High Park to make the district one of the finest residential sections in the city, have been crowned with an unusual measure of success.

As a cut flower the peony is hardly equalled. Cut the blooms as the bud is about to unfold and place in water in a cool room, such as a cellar, where the air is fresh, night and day, free from draughts. They will continue to develop, and when brought up as required they will open and retain all their fragrance and delicate fresh coloring, last for days, and be superior to those left to open on the plant exposed to the heat of the sun which fades them out very quickly.—J. H. Bennett, Barrie, Ont.

Two good varieties of the moss rose are the Crested Moss and Blanche Moreau.—Wm. Hunt, O.A.C., Guelph, Ont.

The Growing of Roses

Jas. M. Bryson, Avoka Vale, Toronto

It must be confessed that of late years there have been vigorous and sustained efforts made to level up all roses to one uniform standard, that of the best show blooms. In pursuit of this not a few roses of special interest have disappeared from many gardens. At present the rose fever runs high in the direction of the hybrid perpetual and hybrid tea, and even the popular sorts may be moulded by pruning and training into other forms than those of the standard, half standard, or dwarf bush rose. To show how to secure variety of form is the purport of this paper.

Pruning may, in some important senses, be said to be the basis of training. The highest examples of rose training contain two apparently opposite qualities, symmetry and diversity. Each rose may be a symmetrical type, of a particular formed rose, and yet the mere juxtaposition of two forms will yield a richer variety than if neither had been more or less perfect of its kind. For example, a perfect dwarf and a perfect standard afford more contrast or diversity than if the dwarf were climbing up into standard stature. Similar contrasts may be drawn between pillar and weeping roses. These principles must be clearly borne in mind and persistently applied in practice when pruning roses.

A superfluity of material is almost more difficult to deal with than a scarcity. By looking well ahead this may generally be prevented by disbudding, a kind of prevention that saves much cutting and carving afterwards. For pyramidal roses the number of shoots for example, to form the pyramid is four: That is to say, one central shoot and three side shoots. These may either be forced out of the base or the stem breaks from near the base. The latter may help to widen the base of the pyramid. In this formation the leading shoot should always have the preference from the first. That shoot, though beheaded every year, should be cut back to the best and most prominent buds, in order to ensure the presence of a fine bud. At this point it is a good practice to disbud the upper end of the shoot, or even to shorten the leader considerably about the middle of September. This throws the strength of the plant into the buds left, and ensures that the upper ones, especially those nearest to the beheading line, shall break vigorously the next year.

When the old leaves on a growing plant begin to wither or lose their natural color, cut them off.—E. Lane, Galt, Ont.

Garden Enemies

R. S. Rose, Peterborough, Ont.

ALL gardens are now in full swing, and should be attended to every day. An hour or two each morning before breakfast is by far the best time to do the work as one is fresh then and can do much more than in the evening, which time should be left for watering.

FIGHT THE APHIDES.

This is the time to get after the aphides, that little green insect that comes on the roses and sweet peas. I give here what Mrs. Ely in her book entitled "A Women's Hardy Garden" recommends as the best to use:

"Put one cake of laundry soap shaved fine into one gallon of water. When dissolved add two gallons of kerosene oil. This makes the emulsion. For spraying one quart of the above emulsion in fourteen gallons of water."

Be sure that this is thoroughly mixed before using. If you have not got a sprayer use an ordinary whisk and whisk upwards under the leaves and around the stalks of the plants.

Now take a look at your Rudbeckia (Golden Glow) and see if a red insect has got on them. We will call them red aphides, as I do not know their proper name. They appear on the stems of the plant just under the blossom. Kerosene emulsion will also kill these pests.

I have also used a preparation which I have found effective against the green, red and blue aphides. It is a mixture of tobacco. Take an ordinary pail and fill lightly with tobacco stems. Do not press them down. Pour into the pail as much cold water as it will hold. Let this stand for a good two hours. It will then be ready for use. Spray the same as with any other emulsion. The only trouble with the tobacco water is that it is not good after two days as it seems then to lose its strength, and will have to be made up fresh, while the kerosene emulsion is good for any length of time. The aphides should be attacked as soon as they appear. If you have not got any emulsion on hand have it ready next year and spray before signs of these pests come. Prevention is better than cure.

Use three pounds of blue vitriol in coarse crystals, and three pounds of unslaked lime. Slake the lime in two and a half gallons of water. Pour two and a half gallons of water over the blue vitriol in another receptacle, and let both stand over night. In the morning stir the blue vitriol until all is thoroughly dissolved. Then let two persons pour simultaneously the lime water and the blue vitriol into the same receptacle, and add twenty gallons of water.

Before using always give it a good stirring. This mixture will last during the summer without losing strength and should always be on hand. It is also good for any kind of blight that may appear.

Hollyhocks, monkshood, roses and phlox all have a tendency to rust or mildew, and if sprayed at the end of April and again during May with this mixture it should prevent such blight attacking the plants. Phlox should be sprayed during June and July or when you notice the leaves turning black or brown.

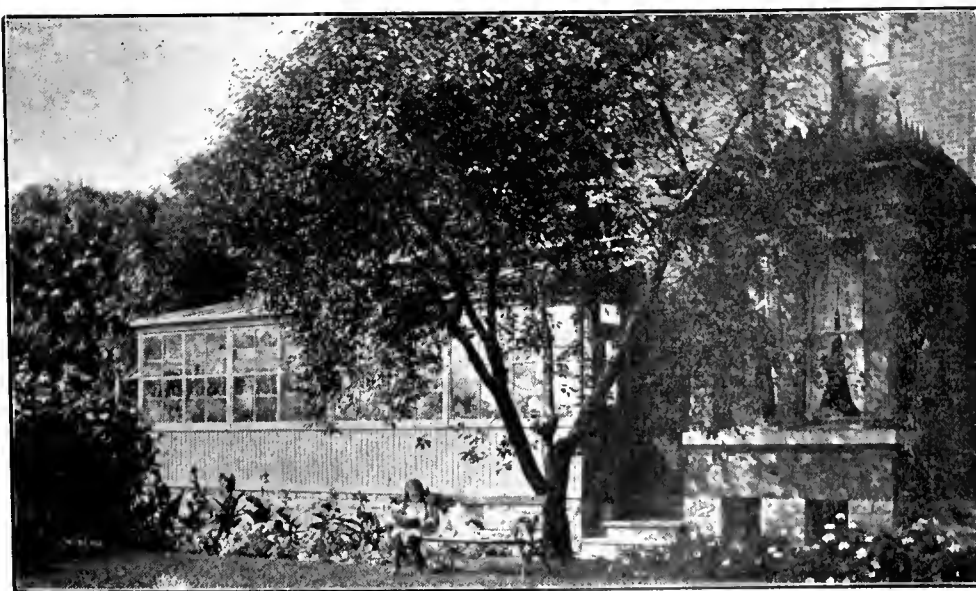
Mildew is now likely to attack your rose bushes during July. Look out for white spots coming on the leaves, and if you cannot get Bordeaux mixture another good remedy is Flower of Sulphur. Pick off the affected leaves and cover the rest with the sulphur after watering, or when there is a heavy dew. Do this for a day or two. I have also heard of soot being used. This was highly recommended to me by an extensive rose grower, and is said to work splendidly. Cover the bushes well with the soot and let it rest on them for four or five days, then wash off. The mildew will disappear and the leaves turn a deep rich healthy green.

I would also suggest that you take a stroll around your neighbor's garden. He or she may have some plant that you want and you may have just what they want in exchange. Exchange of plants or ideas are one of the delights

of gardening. You will always find a gardener who takes a pride in his place willing to show you his garden and to talk about it. Also take a run around the greenhouses and keep in touch with the florists. You will find them courteous and willing to give you any information in their power regarding any trouble that you may have with your garden. One's work in a garden is never done during the months from April till the frost drives us from the garden to the house for shelter. It is a pleasure ground from start to finish and those who love their garden and what it brings forth, will find it a restful labor before or after the day's work in office or factory.

What is the cure, if once they take a good hold of your plants? There is none. You may keep them in check, but you cannot altogether get rid of them, but, as I said before, there is something better than a cure; there is prevention. The aphid finds no food when the plant is in perfect health. It will not taste the sap that is pure and untainted. It is a leech which sucks bad blood only. Now you know what you are up against, so get busy and fight them if you can to a finish.

There are other enemies besides insects that attack our plants, namely, rust, or mildew. You can tell when this is attacking the plants as the leaves will turn black, brown or white and fall off. In cases where this appears use Bordeaux mixture, spray as with kerosene. This mixture can be bought from any of the nurseryman or can be made up at home after purchasing the ingredients.



An Amateur's Greenhouse, that of Mr. R. B. Whyte, Ottawa

Simple greenhouses, such as this, can be erected at but slight expense by any amateur flower grower. The returns cannot be estimated in dollars and cents. In this small house Mr. Whyte has tried many kinds of plants. His chief show plants are the bulbs, and never from early winter till late spring is his house without a beautiful display of these most satisfactory flowers. Frezias, narcissi, tulips, hyacinths, form the staple crops, while crocuses, grown in flat pans, also make very effective shows. A full description of this greenhouse was published in the last August issue of The Canadian Horticulturist.

Managing a Greenhouse for Profits

ONE of the pioneer market gardeners of Nova Scotia is Mr. H. Loomer, of Falmouth, Hants Co. Eighteen years ago Mr. Loomer made a start in gardening by purchasing thirty-six acres, most of which at the time was rough land. His total initial capital was just seven hundred dollars.

For upwards of twelve years no extensive greenhouse work was attempted; cold frames and hotbeds only were used to get a longer growing season. No attempt was made at first to grow anything out of the ordinary line of market vegetables. The nearby town of Windsor was the nearest market, and a large part of the truck Mr. Loomer sold by going from house to house with his team. But gradually the market was enlarged, until to-day shipments are made to most large towns of the province.

Over five years ago Mr. Loomer's trade had reached considerable proportions, although he had as yet made no attempt to grow vegetables out of season on a large scale. By early starting and careful methods he got his produce on the market before the general crops came on and thus obtained the top price. But Mr. Loomer believed in the possibilities of growing vegetables under glass and backed up his belief by erecting a one hundred and fifty by thirty foot greenhouse. Year by year the plant has been increased, until now there is about fifty thousand feet of glass. When visited by an editor of *The Canadian Horticulturist* early in July, one hundred dollars' worth of products were being shipped out every day; the annual output is over ten thousand dollars.

During July the chief greenhouse crops are cucumbers and tomatoes. From a half-acre of glass Mr. Loomer turns off an average of one thousand cucumbers a day for a period of two months. Greenhouse lettuce, radish, and spinach are over by that time. By the first of August, when the outdoor stuff is coming on, the greenhouse crop is about done. The vines are cleaned out and manure is spread four to five inches deep. This manure is kept watered down till September when a team is taken into the greenhouses and the manure is plowed under. This is the only dressing of manure that the ground receives during the year. Successive crops receive applications of commercial fertilizers.

Towards the middle of September the first sowings of lettuce, radish and spinach are made. Lettuce is sown thick in one of the houses and then transplanted to some of the others. The first cut is made in November and continued sowings give a supply through the winter.

Sowings of cucumber are made from January first to the end of February. Previous sowings of lettuce are made with a vacant row every seven feet, and this row is sown to cucumbers. At other times the cucumbers are placed seven feet apart, with two rows of beets between and a row of radish or lettuce between each row of beets. Cucumbers are sown fifteen inches apart in the rows. The vines are trained on upright trellises to a height of six or seven feet and then overhead on setting. The laterals are pruned at the second bud, leaving two fruits to each branch. A hive of bees is kept in each house to ensure the setting of the fruit.

Mr. Loomer's favorite variety is a cross that he has himself made between two varieties—Rawson's Hothouse and Granite State. From this cross he has made continual selection and has a splendid cucumber of medium length.

The spring tomato crop is sown in December and January. Four or five transplantings are made before bearing. The final settings are in rows two and one-half feet apart, with sixteen to eighteen inches between plants. The vines are trained upright on a string and pruned to single stem leaders. The method of pruning for fruit is practically the same as the Potter system, as described in the *July Horticulturist*. Bees fly in the tomato houses during the winter and a satisfactory set of fruit is obtained. The bees are fed sugar syrups at that time.

During the winter and early spring, celery, lettuce, beets, cabbages, tomatoes, cucumbers and squash are all started in the greenhouse for early planting out of doors. These come on the market early and bring the top price. Irriga-

tion has been found necessary to bring transplanted lettuce along nicely. The Skinner system of irrigation is used. The best possible use is made of the land; between the rows of early vegetables late celery is sown.

About the first of June celery is sown out of doors, where it remains till October. It is then brought into the greenhouse and marketed at Christmas time; it gets a good growth before much heat is needed in the houses.

In one small house tomato seed is sown about June 15 and cucumber seed at August 15. These are turned off for the fall trade. The tomatoes are sown earlier because the fruit does not set well during the dark days of late fall. For spring planting Mr. Loomer uses the Bonny Bess variety but prefers the Stone for fall planting. The former does not color well in the greenhouse during winter. Grand Rapids is his favorite variety of lettuce for the greenhouse, as it is about the only one that will stand as much heat as the cucumbers. It must be well supplied with water.

There is something of the supernatural about Mr. Loomer's water supply. He spent several thousand dollars boring artesian wells in order to locate a sufficient flow of water, but without success. A lady visiting at his home not long ago remarked that she could locate water with a forked apple branch. Mr. Loomer was quite willing to let her try, so they went out to see if water could be found. After a while his friend indicated where she thought there might be water. Men were set to work, and at a depth of ten feet a supply of water was found that a gasoline engine, pumping forty gallons a minute, cannot drain in a day.



Interior of one of the Greenhouses of Mr. H. Loomer, Falmouth, N. S.

(See accompanying article.)



Planting Lettuce in a Pipe Frame Greenhouse. Lord & Burnham, Construction, Toronto, Ont.

Questioned as to his marketing methods, Mr. Loomer replied that he thought for a man beginning in a small way near a large market it would be best to specialize in a few crops. In his own case his market is so scattered and so many small and varied orders

come in that he is obliged to raise a large variety of crops. Where the market is not large in any one place, it is difficult to get back the packages. When near a large city one can team the produce and get the packages back; otherwise an additional outlay is required.

Vegetable Growing Under Glass

A. H. MacLennan, B.S.A., Macdonald College, Que.

MARKET gardening in Ontario as a business has been growing rapidly. In growing it has changed its character greatly. For many years it was carried on entirely in the field. What early plants that were required were produced in the field. But of late years the grower finds that he must change many of his methods, must build a greenhouse. And why?

To answer this question, if we look closely we will find several reasons. First, we find the city population has increased; more wealth is being added to our bank account. With this increased wealth has come the desire to spend more freely, our tastes have changed, so that now we desire to have on our table many things which are out of season ordinarily.

Next the grower has come up against the question of labor supply. The opening up of the Canadian west; the ease with which a man may start a business for himself; the sudden booms in land values which often made a man wealthy in a short time; the tendency to drift to the cities in the fall, and there to remain, are the main reasons for this

scarcity. The growers find they must overcome this if they would succeed. How can they do so? Not by following the former routine. They must build greenhouses wherein they can grow crops winter and summer. Here they can give men work the year round, their own business and profits increasing at the same time. They find their men much better satisfied. The wet disagreeable work which formerly often had to be done when transplanting their crops in hotbeds is now done in warmth and comfort. The plants themselves do better.

Lastly arises the question of earliness. Anyone who has had any connection with gardening in Ontario knows that to obtain the best prices one must try to have his produce on the market earlier than his neighbor. While this was done, formerly in hotbeds, the labor required to operate them and uncertainty of weather conditions during the transplanting period, made too much of a handicap. Much better plants came from the greenhouse; he could start earlier and thus gain time.

Greenhouses in Ontario to-day are mainly of four types. The first is the

sash house, made by two sash fastened together in the shape of an A (inverted V) with a path dug out eighteen inches to two feet in the centre for working. This type is heated by a stove and is used only to produce early plants for outside planting. The second has wooden sides, four feet high, and glass roof; is fourteen feet wide, with no supports for the roof. This house is good for winter lettuce growing and early plants in spring, while under the benches one can force rhubarb. The third type, and the one most commonly found in Ontario, is called the pipe frame. These houses are generally thirty or forty feet wide with two or more rows of supports made of pipe. This type of house appeals to the grower, since he can erect it himself. The fourth type is the flat iron rafter house. This house is more expensive but lasts longer and is much stronger. It requires few repairs little glass is broken, things which soon would make up for any saving in first erection cost.

To-day we find most of our growers devoting their house to the growth of lettuce with spring crops of cucumbers and tomatoes. Some grow tomatoes in the fall and spring with a crop of lettuce in between. Other crops that might be grown are peppers and cauliflower. The diversity of crops grown will soon be as great as outside.

One must not think, however, that greenhouse growing of crops is easy. Some people will say, "Oh, you have everything under your control; you can make the weather to suit yourself." While this may be true, still one must remember heat requires coal to make it; coal costs money. Again nature takes much greater advantage of any slip we may take. Much more so than outside, and slips soon eat up the profits.

Practical Pointers

It is more economical to purchase one ton of high grade fertilizer than three tons of low grade.

The planting of strawberries is preferably done in August, the soil having been used to produce early vegetables, which will have been removed before the end of the month.—W. A. Dier, Ottawa, Ont.

"The fruit on lime soils is often smaller, unless much humus is present; but the statement made in Europe that cultivated fruits, and especially grapes, are sweeter on calcareous soils, is abundantly verified in the native fruits of the Mississippi valley states as elsewhere; where the various wild berries, haws, plums, etc., are well known to the younger part of the population to be much sweeter and higher flavored in certain (calcareous) localities than in others, besides being usually more abundant."—Hilgard.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.
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2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra year, including postage.

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The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1911. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,626	Total	150,293

Average each issue in 1907, 6,627
" " " 1913, 12,524

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts. Communications should be addressed

THE CANADIAN HORTICULTURIST,

PETERBORO, ONT.

EDITORIAL

AN ECONOMIC IMPOSSIBILITY

These are days when we hear much about the "back-to-the-land" movement. Magazines feature articles which describe the great financial success some former city dweller has made by deserting the city and taking up market gardening, fruit growing, dairying, or some other kindred farm occupation. These articles create an impression that the time is ripe, consequent upon the high cost of living and rural depopulation, for many city people to move out to the country. Many people really expect to see such a movement take place ere long.

There are many reasons why such a migration can never take place under existing conditions. One of the principal of these is the tendency of land to increase in value in proportion as the demand for it increases. Fruit growers especially have noticed this tendency. Let us illustrate how this principle works.

Toronto has a population of approximately five hundred thousand. Suppose ten thousand people in Toronto decided that they were going to give up city life and go in for farming. The first thing they would have to do would be to take stock of their resources. Next they would have to ascertain what investment they would have to make to obtain the necessary land.

Suppose they found that the best fruit land, such as that in the Niagara district, was worth two hundred dollars to fifteen hundred dollars an acre, the best ordinary farm land from seventy-five to one hundred and twenty-five dollars an acre, medium good farm land from forty to seventy-five dollars an acre, depending on its location, and poorer land twenty to forty dollars an acre.

Of the ten thousand would-be fruit growers or farmers, two thousand might be able to purchase the higher-priced land, three thousand the best farm land, three thousand ordinary farm land, and the remaining two thousand the poorer class of land.

With these facts before them, suppose these ten thousand people set to work to purchase land at the prices which they had decided were within their reach. What would happen? Simply this: As soon as the first two or three hundred of the first two thousand began to purchase the best fruit land at the prices mentioned, the holders of such land would advance its purchase price ten, twenty-five, fifty, possibly one hundred per cent. The result would be that only a small percentage of the two thousand would be able to secure such land as they were looking for. Those who could not would then be forced either to give up all idea of settling on the land or to buy poorer land than they had first intended to purchase. This would increase the number of people seeking that class of land, and it also would increase in value with a similar result. The same principle would hold true of all the other grades of land on the market, limited only by the amount of it offered for sale and the number of people desiring to purchase it.

This tendency of the price of land to increase in even more rapid ratio than the demand will always make it impossible for any large number of city dwellers to leave the crowded cities to engage in rural occupations. It is because our available free

land is about exhausted and because occupied farm and fruit land is held at values that are high, considering its productive power, that immigrants and farmers' sons are unable any longer to obtain land at prices which are within their reach and thus are forced to settle in our urban centres and engage in occupations in which the ownership of land is not essential.

This is the main explanation of the problems that have been raised by the more rapid increase of urban than rural population by the increased cost of living and by the growth of slum areas in our cities. It explains, also, why we are hearing more and more about the "land" question. The sooner we recognize that these problems are going to increase in importance, and that existing conditions are going to become worse rather than better, particularly in our fruit districts and in the market gardening sections adjoining our larger cities, unless we settle this land question, by among other things, taxing land according to its value, the sooner will we make progress toward their solution. The only difference between the land question in Great Britain and in Canada is that it is farther advanced there than here, and thus they have been forced to deal with it.

PROTECTION OF BIRD LIFE

Every observant fruit grower has long recognized the fact that the great majority of birds are beneficial rather than injurious to the orchard. While some species consume considerable quantities of fruit at certain seasons, they are beneficial at other periods. Were they in time to become exterminated the number of pests of different kinds that the fruit grower would have to contend with would be greatly increased through the disturbance to the balance of nature now maintained by bird life.

We have been slow to recognize the important part played by birds, but as a result of costly experience we are beginning to find how necessary it is that bird life shall be protected. In May the United States Senate passed an appropriation of fifty thousand dollars for the enforcement of a new federal law for the protection of migratory birds. The president of the American Game Protective Association, Mr. John B. Burnham, is now urging the adoption of a treaty by the United States and Canada that will have for its object the protection of all birds that migrate between the two countries. Such a treaty has been drafted and is now being pushed in Congress by friends of the Association. While the provisions of such a bill may require careful consideration, the general principle is one which will meet with general approval in Canada.

THE SOD MULCH

A short time ago there appeared in a United States periodical an article dealing with the sod mulch method of orchard management. Much stress was laid upon the merits of this system as proved by investigations conducted by experiment stations in the states of New York and Ohio. The article in question leaves the impression that the sod mulch is to be preferred to cultivation. It must be remembered that the orchards in which the sod mulch proved so successful were located on hilly ground or possessed unusual soil conditions. In order to give both sides of the case, extracts from the article mentioned and from the New York state bulletin are published elsewhere in this issue.

Whatever the conclusions drawn from this controversy may be, the history of orcharding in Canada proves the efficiency of cultivation. Sod orchards that had not yielded enough fruit to pay for the picking have by improved management given good returns. Of the improved methods adopted, cultivation has been one of the most important. There is little fear of any widespread return to the sod mulch.

Several features of the sod mulch method, however, are worth consideration. Occasionally we find orchards located on a steep slope. These are always difficult to cultivate and soil washing is prevalent. We have in mind several orchards situated on steep hillsides in which the roots are near the surface because of soil washing. Every winter a few trees are heaved out. Were the grass cut and left to serve as a mulch and fertilizer applied we believe the sod mulch would prove satisfactory in those orchards. In any case, however, owners would be well advised to carefully consider conditions before making a change.

SCHOOL GARDENS

There are this year two hundred and ninety-three school gardens in Ontario, an increase of sixty per cent. over last year. In addition, there are five hundred schools that distribute seeds to the children. Most of the district representatives, of which there are about forty, have on an average twenty schools holding school fairs.

Such progress is encouraging, but when it is considered that there are nearly six thousand schools in this province, much yet remains to be done. Teachers everywhere report that the greatest need is more sympathetic assistance on the part of the parents. Many hold that there is no need for a school garden where children are brought up in a natural environment. A greater mistake could hardly be made. It is that same familiarity that dulls the child's mind to the beauties about him and creates the longing for the "real" life of the city. Under the direction of the school teacher, new interest in the wonders of nature and the true worth of the country life can be aroused through the medium of the school garden.

In calling the fourth Dominion Fruit Conference for next September the Dominion Minister of Agriculture Hon. Martin Burrell, has acted wisely. The fruit industry in Canada is developing with such rapidity that new and important problems are constantly coming to the front while old ones, which have never been fully settled, insist on receiving further attention. Those who attended the last Dominion Conference, as well as the one held previous to it, realize that the delegates present had too much business to deal with in the time at their disposal. Much of their work had to be hurried, and some neglected altogether. It is well, therefore, that these conferences shall be held with sufficient frequency to ensure the important subjects dealt with receiving the attention their importance deserves.

As the ratio of urban to rural population in Canada increases the demand for fresh vegetables at all seasons of the year will increase in proportion. Thus we may expect to see a marked increase within the next few years, as we have within the past five years, in the number of greenhouses erected for the production of vegetables. As the number of wealthy people in our

large centres increases we may also expect to see an increasing number of conservatories erected in connection with private residences for the production of flowers. The increasing interest taken in horticultural exhibitions, as well as the greater number of these exhibitions that are now held, is an indication that horticulture in Canada is rapidly assuming a position of greatly increased importance.

SOCIETY NOTES

Western Notes

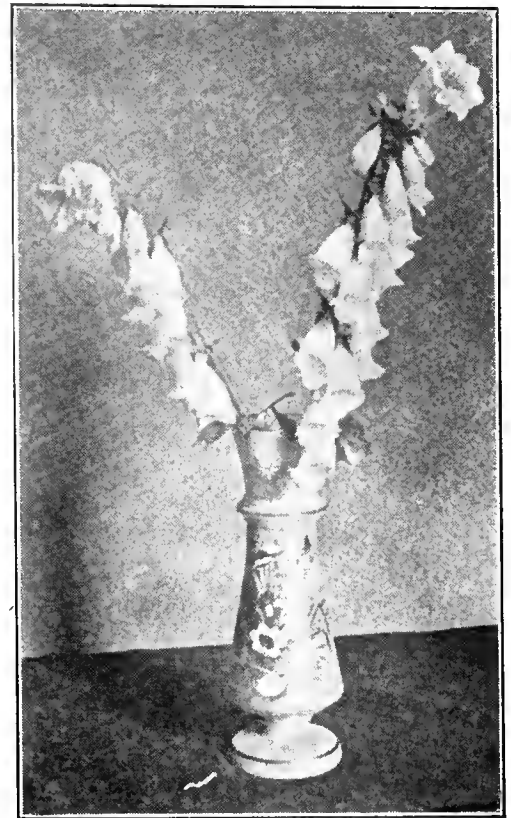
The Winnipeg Horticultural Society has definitely decided to hold another provincial Horticultural Exhibition this year. It will be conducted to some extent along the same lines as the Ontario Horticultural Exhibition inasmuch as an effort will be made to have the board comprise as many related organizations as possible. The date has not yet been set, but it will likely be about the beginning of September. The Souris Society will also hold an exhibition in September. What is called the Three Towns Horticultural Show will be held on August 21 at Crystal City. The three horticultural societies in Killarney, Crystal City and Pilot Mound unite in holding the show. Mr. R. Jamieson, of Crystal City, is the exhibition secretary-treasurer.

Hamilton

The Hamilton Horticultural Society held a most successful flower show on June 24th, when the ground floor of the old Library Building was transformed into a fairyland of flowers. The display of roses of all colors and varieties was particularly beautiful. Mr. J. T. Moore, of Moore Park, Toronto, had a most spectacular display. It was the most successful exhibition the society has held for years. There was a large supply of the old-fashioned flowers—Sweet William, Canterbury Bells, and others. The gold medal offered in the rose competition, open to amateurs only, was won by J. W. Harper, and the silver medal by T. H. Hayhurst. The society's prize for the best collection of decorative plants was won by J. A. Anderson. Max Stolpe had an interesting section devoted to landscape designs, plans and drawings. A green rose exhibited by Benjamin Johnson and a miniature Japanese garden, shown by Mrs. Valance, attracted much attention. Much of the credit for the success of the show was due to the efforts of the secretary, Mrs. Potts, and superintendent J. A. Anderson and Mr. A. Palmer.

Belleville

During June the Belleville Horticultural Society held a successful public meeting. The principal speakers were Rev. Geo. W. Tebbs, of Orangeville, and Mr. C. W. Nash of Toronto. Mr. Tebbs showed on a screen a number of hand-painted slides dealing with gardens, lawns, orchards, and fruit. The slides were shown from natural color photography. The coloring was magnificent. Mr. Nash spoke on the subject, "Friends of the Flower Garden." He described the habits of various denizens of the garden, including beetles, dragon flies, birds, and the common toad. By the killing of snakes, hawks and owls man has destroyed those creatures which prey upon troublesome meadow mice. Thus man suffers when he tries to upset the balance of nature to suit his own ideals as to the fitness of things.



A Floral Novelty

The illustration here shown was sent The Canadian Horticulturist by Mr. Walter T. Ross, of Pieton, the secretary of the Pieton Horticultural Society. It shows a couple of stems of fox glove with a Canterbury Bell on the top of each stem. They were grown in the garden of Mrs. J. M. Mallory, of Bloomfield.

PUBLISHER'S DESK

Our front cover illustration this month shows a conservatory in a private residence in Montreal. While there are not many of us who can enjoy the possession of such a conservatory as the one shown, it is gratifying to know that the number of such conservatories in Canada is increasing rapidly. The delightful opportunities of such a conservatory are limitless.

In the August issue of The Canadian Horticulturist last year we devoted special attention to topics bearing on the construction and operation of greenhouses and private conservatories. The information contained in this number was so appreciated by our readers we have again given special attention in this issue to topics bearing on the greenhouse and the production of various crops under glass. Amateur flower growers who would like to erect inexpensive greenhouses will be interested especially in the illustration of the inexpensive greenhouse of Mr. R. B. Whyte, a full description of which was published in our August issue of last year.

Our September issue will be our Annual Fall Packing and Exhibition Number. It will be particularly strong both in illustrations and subject material. Many of Canada's leading authorities on the production and handling of fruit will contribute. Lack of space prevents our giving a more complete description of this issue, beyond saying that it will be a larger issue than usual and one of the best numbers of the year.

Success of Cooperative Effort in Nova Scotia

THE reports presented at the second annual meeting of the United Fruit Companies of Nova Scotia Ltd., held in Berwick, N.S., June 30 and July 1, showed that the principles of cooperation have become firmly established in Nova Scotia. In spite of adverse conditions the year was one during which great progress was made by the company and a large volume of business transacted.

Some idea of the business done may be gained from the following extracts taken from the annual report of the Board of Management, composed of Messrs. John Donaldson, president; A. E. MacMahon, F. W. Bishop, F. H. Johnson, B. W. White, S. B. Chute, general manager, and A. E. Adams, secretary.

The year through which we have passed has presented problems of a most extraordinary and unusual character, and your Board feel much gratified that, even under most trying and adverse conditions, they are able to present a report which records success in all its undertakings and a justification of the various policies which have been pursued.

The previous year had, as you are aware, been a year of low prices, and the season under review opened with indications of a short crop all around.

Speculators, aware of these facts, visited cooperators and offered prices that in comparison appeared large indeed.

These prices would not have been offered but for the cooperative movement, and we are glad to report that practically all of our members remained loyal to their fellows and turned down all offers made, thus successfully defeating the efforts of self-interested speculators to break up the cooperative movement.

Not only did these cooperators demonstrate thereby their loyalty to their fellows and to their cause but they also showed common sense in recognizing that speculators were buying for profit and that their central association had exactly the same means of earning that profit as the speculators; the only difference being that in one case the growers marketing through their own business would own and retain the profit for themselves, while in the other case all the profits would go into the pockets of the speculators.

The test that these circumstances made possible has shown what sterling qualities are possessed by the majority of our membership, and should serve as a lesson that it is futile to throw away money in bait to cooperators now that the great superiority of the cooperative method is so thoroughly understood.

During the year six Companies have taken stock in the Company, making a total of thirty-eight Companies holding shares in the Central Association and necessitating an increase of authorized capital.

During the season your Central has handled 274,000 barrels of apples and 38,700 barrels of potatoes; a grand total of 312,700 barrels.

Out of this quantity, however, there were only 79,531 barrels No. 1, 36,459 barrels No. 2, the balance, 158,000, being No. 3.

There were also in this quantity no fewer than 170 varieties, comprising a very large percentage of apples difficult to market on account of the fact that they are unknown.

Yet, in spite of that overwhelming proportion of No. 3 and all those odd varieties, your Central has been able to make a return which works out as a mean average (including absolutely everything) at \$2.57 per barrel, ones, twos and threes.

While we are prepared to admit that a general shortage of the apple crop has in a measure been the reason for such high prices, yet the system under which we have marketed the apples entrusted to our care has been principally instrumental in enabling us to make such large returns for such a percentage of the entire crop as we handled.

EXPENSE OF OPERATION.

A meeting of your directors was held on September 27th, and an estimate for the ensuing year was submitted. According to this estimate, which was made before the real business of the year started, the expenses would work out at \$13,300 for apples and potatoes, and \$2500 for supplies, a total of \$15,800.

In actual fact the expenses for the year only amounted to \$12,300 for apple and potato accounts, and \$5452.48 for supplies, or a total of \$14,653.48, about \$1,100 less than our estimate.

That portion of expense applicable to apples and potatoes works out at four cents per barrel.

We consider, and it is also the opinion of the various Government Departments of both Canada and the United States who have investigated our system, that our expenses are absurdly low, considering the amount of work accomplished and the great saving effected in the cost of handling, the enhanced prices realized for the Valley's crop and the reduced prices now paid for nearly all necessities of the farm.

We have, however, investigated the expenses of various other organizations and we find that our expenses are ridiculously small in comparison.

For instance, we find, according to the Bulletin of Economic and Social Intelligence, that the Californian Fruit Growers' Exchange show an expense of 7-2-3 cents per box. The secretary of this company claims that this is the lowest marketing cost for any agricultural product in the United States.

The North Pacific Fruit Distributors write us that the cost of their central is fifteen cents a barrel, while the sub-central's expenses amounted to thirty cents a barrel. They state that salaries vary all the way from \$1200 for a manager of a small local, to \$10,000 for their central manager. They further state that it is the man who can successfully manage the business they want; if successful he can secure about any salary. We feel, therefore, we need make no apology for the expense of only four cents a barrel, especially in view of the fact that another 200,000 barrels could have been handled with practically no additional expense.

During the season your Central loaded apples and potatoes on to no less than 118 boats. One steamer and three schooners were chartered to carry potatoes to Cuba.

With reference to the pack of this year we are able to report a vast improvement in the direction of uniformity. This is borne out by the daily report of our local inspector and also by the detailed and tabulated report of your European representative, who has met each boat and examined all packs. It is also borne out by the trade on the English market, who report a distinctly more uniform pack than at any time previously.

Reviewing the whole year we consider that to have maintained the reputation of the cooperative pack on a year when our apples were so atrociously scabby and spotted has been quite an achievement and re-

flects the utmost credit on all concerned.

We were gratified to note that, generally speaking, fruit growers have realized the absolute necessity of spraying and that this spring spraying has been carried on in a manner never before approached in the Valley.

As an indication of the increased attention that has been given to this vitally important matter, we would state that your office handled three times the quantity of spraying material this year compared with last.

We wish to give some explanation in connection with our method of handling the large spotted apples.

During the first few weeks of the season we were permitted to pack such fruit as numbers twos but later in deference to the requirements of the Fruit Marks Act this pack was discontinued.

Your Board of Management did not feel that they would be protecting the interests of the growers by allowing such splendid fruit as represented by these apples to be simply marked No. 3. They therefore instituted a special pack known as Cooperative No. 3. On the face of the end of the barrel was attached a label reading as follows:

"IMPORTANT."

The apples in this barrel are guaranteed to be number one in size, but have the defect of being either off-color or spotted. The Dominion Fruit Marks Act forbid this class of apple being marked number one."

The idea of this label originated in the mind of Mr. F. M. Chute, of Waterville, to whom we accord the credit of an idea that has put considerable money into the pockets of the Cooperative Fruit Growers of the Valley.

British Trade Prospects

Writing to the Department of Trade and Commerce from Birmingham, Eng., Canadian Trade Commissioner J. E. Ray reports as follows:

Canadian fruit is always saleable in this district, and direct shipments are becoming more frequent every year. Complaints re quality and packing were frequent ten years ago, but each season recently has found buyers and sellers satisfied with their transactions. Apples, pears, peaches, and plums are in demand, the most popular variety of apple in Birmingham being the Golden Russet. Imports of Canadian apples into Great Britain were £838,283 in 1908 and £847,583 in 1912, while imports of pears have declined from £13,541 to £7,996 during the same period.

CANNED FRUIT AND VEGETABLES.

Although Canadian canned fruits are on sale here, observation shows that the opportunities for extension of sales are practically unlimited. All the retail stores carry heavy stocks of canned fruits and vegetables from the United States, and several packers in that country conduct extensive advertising campaigns throughout the British Isles. The quality of Canadian fruits is highly appreciated in Birmingham, but very few buyers appear to differentiate between the United States and Canadian products, both of them being invariably referred to as "American." Canned and bottled peas command good prices and the trade is sufficiently large and regular to repay Canadian packers. Investigation does not reveal the existence in this district of Canadian peas thus prepared.

LANARK GINSENG

Fortune awaits any man who will give time and attention to the growing of Ginseng. We have made a complete success of it and are ready to point the way to others. The time to prepare the ground is now, the time to plant is September and October.

Lanark Ginseng Seed is noted for its strong germinating qualities.

Lanark Ginseng Roots are sure growers and great producers.

Dont' fail to make investigation of this highly profitable industry. Write to the Secretary and he will tell you all about it.

Address **C. M. FORBES**
Sec. Lanark Ginseng Garden Co.
LANARK, ONT.

BULBS

Now is your chance to get your Fall Bulbs **At ROCK BOTTOM PRICES**

We represent in Canada one of the largest Wholesale Bulb and Plant Growers of Holland and we are going to sell at retail better Bulbs at less than you have paid before for inferior kinds.

Send us your List and we will quote you, as we have no Retail Catalog and you do not help pay for one.

NO ORDER TOO LARGE - NO ORDER TOO SMALL

Write To-day—NOW

THE GARDEN & ORCHARD SUPPLY CO.
637 King Street East, HAMILTON, ONT.
Phone 3514

Dominion Fruit Crop Conditions

The report of the Dominion Fruit Division on crop conditions under date of July 13th, stated that the June or July "drop" now being over, reports generally are not so favorable as those sent in a month ago. There is, however, a tendency on the part of growers to underestimate their crop at this time, just as they are inclined to overestimate it at the time of blossoming. In eastern Ontario the crop will equal that of last year, and in western Ontario will approach that of 1912. Nova Scotia, while suffering seriously from frost in some sections, will produce the best crop since 1911, if nothing further interferes. The crop of British Columbia will surpass that of 1913. It is therefore clear that the Canadian apple crop, from present indications, will be above average, and with proper attention given to distribution and marketing, one that will return to the growers satisfactory figures.

The apple crop in southern and western Ontario and in the Niagara district will, from present indications be an excellent one. Greenings and Baldwins have been reported short in Wentworth county, but taking the western portions of the province as a whole, the yield promises to be well above the average and of good quality.

Conditions in the inland counties of Ontario correspond very closely to those in southern and western Ontario. In both districts the drop has been exceedingly heavy. Huron county reports fall varieties particularly good, with winter sorts lighter. Spies being about equal to the 1913 crop. Brant county promises to equal the 1912 yield, and prospects are almost equally favorable in Middlesex.

In the main apple-producing counties of

Douglas Gardens
OAKVILLE, ONT.

The Rhizomatous Irises, including Pumila, Interregua and Germanica, should be planted not later than August for best results. We strongly recommend Iris Koenig, 50c each; Rhein Nixe, 50c each, Wyomissing, \$1 each, Juniata, 75c each, Mandraliscae, 25c each, Mme. Chereau, 15c each. We have five fine sorts of Pamila Hybrids, and five of the best of the Interreguas.

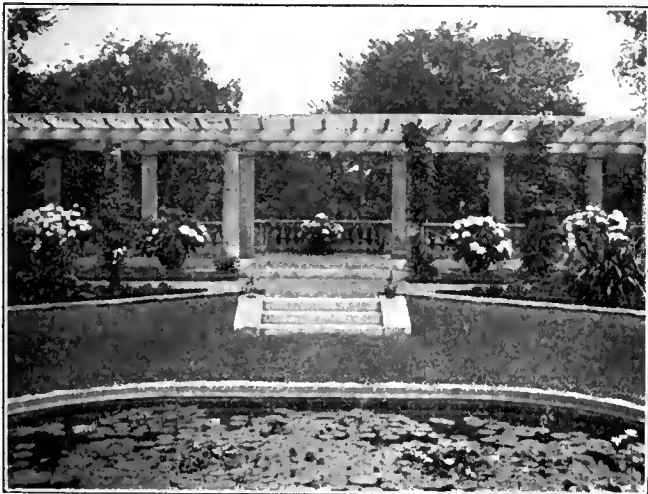
Nearly all the varieties of Peonies that we offer this year are **one year** plants. The other varieties will be in strong divisions. These should be planted in the latter half of September and orders should be given now.

We have a fine lot of "Miss Lingard" Phlox, Delphiniums, Aquilegias, Shasta Daisies, and other Herbaceous Perennials which are described in our fall planting list now ready for distribution. This list will be sent to all on our mailing list and to others who send their names and addresses.

EARLY ORDERS ARE SOLICITED.

Cash with orders, please.

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In order that everything may harmonize when the work is completed, the architecture of the grounds must be handled just as carefully and with the same definite purpose as the architecture of the house. If you are building a New Home and need Planting Plans or if you wish to re-arrange what has already been done, we are at your service with Practical Suggestions.



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LIMITED
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AND
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CABBAGE WORMS *Destroyed by Dust-* *ing with* **HAMMOND'S SLUG SHOT**

So used for 30 years. **SOLD BY ALL SEED DEALERS.**

For pamphlets worth having write **B. HAMMOND, Fishkill-on-Hudson, New York.**



The Pick of the Bulb World

All our bulbs are grown for us especially and are personally selected by the James Carter & Co. experts.

Thorough tests, both before exportation, and at the Carter establishment at Raynes Park, London, assure sound, healthy bulbs of the very highest quality. Our Tulips and Narcissus are exceptionally hardy and well suited to the Canadian climate.

Carter's Bulbs

are unequalled for bowl or bed culture.

The Carter catalogue and handbook—"Bulbs"—illustrates and describes the choicest varieties of Tulips, Narcissus, Daffodils, Crocus, and many others. It lists all well-known favorites and many exclusive kinds not to be had elsewhere. Complimentary copy on request. Write for it to-day.

CARTERS TESTED SEEDS INC.
133A King St. East : Toronto



Ontario, that is, those along the north shore of Lake Ontario, the failure or success of the crop seems to have depended to a very great extent upon the attention given by the growers to spraying. In spite of the very heavy drop, the general opinion appears to be that a crop about equal to that of last year will be produced. Orchards that were neglected will be almost entirely worthless. In Prince Edward county reports are for a crop below average, especially of Kings. Kings, Baldwins, and Spies will run about seventy per cent. throughout the district. Some of the more tender trees, particularly Ben Davis, are showing the results of the severe winter, which so greatly affected pears, plums, and cherries.

The yield in eastern Ontario and Quebec will be a heavy one, if no further "drop" takes place. It is very gratifying to learn that in Dundas county, the home of the McIntosh, there is promise of an abundant crop of that variety. Fameuse also look well. The June drop was very heavy, but where the tent caterpillars were kept under control, there is still sufficient fruit for an abundant crop.

EASTERN CONDITIONS.

In the province of New Brunswick some injury was done to early varieties by frost. A less serious cold spell was also experienced during the latter part of June. Prospects generally are very promising, particularly for the fall and winter sorts.

The early June frost is generally considered to have reduced the apple crop in the Annapolis Valley by somewhat over half a million barrels. The blossoms set for record crop which would probably have reached almost the two million barrel mark. Reports now are that about one million two hundred thousand barrels will be harvested.

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The Ontario Agricultural College

GUELPH, ONTARIO

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Every Ambitious Farm Boy in Ontario CAN COME TO COLLEGE.

BECAUSE—

Ordinary public school education is sufficient for admission to the Course.

The College Year begins September 18th, and ends April 15th, so that students from the farm may return to their homes to assist in the spring and summer work.

Five months during the spring and summer gives many students opportunity to earn sufficient money to defray College expenses for the following year.

The tuition fee for Ontario students for two years is

only \$20.00 per year, while board and room in residence is obtained at \$4.00 per week.

A portion of the cost during the first year is defrayed by work on the farm and the various departments.

Students wishing to take the full Four Years' Course for the degree of B.S.A. conferred by the University of Toronto, do not require matriculation standing. Students are accepted for this Course if their standing on second year examinations warrants it.

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SPECIALTIES Fruit tree stocks as:

**Apple, Angers Quince,
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Myrobalan, Pears, Etc. Etc.**

Forest tree seedling and transplanted. Evergreens, Ornamental Shrubs, Manetti, Multiflora
Roses in great quantities.

My General Catalogue will be sent Free on application

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Buy your Queens from the man that guarantees every one to be purely mated or replaced free

Prices for guaranteed Queens: 1 queen, \$1.00; 6 queens, \$5.00; 12 queens, \$9.00; 25 queens, \$18.00; 50 queens, \$35.00; 100 queens, \$68.00.

Queens raised from the same stock, but not guaranteed, \$7.00 per dozen. You may order 25, 50, or 100, and have them sent in half-dozen or dozen lots, or in different batches as you wish. Queens furnished till Nov. 15th
CURD WALKER The-Queen-Breeder, Jellico, Tenn., U.S.A.

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The Review and Gleanings one year, \$1.50.
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All three for one year only \$2.00.
Canadian Subscribers add for postage as follows: Gleanings, 30c.; A. B. J., 10c.

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THE BEEKEEPERS' REVIEW, North Star, Mich.

TRY MY IMPROVED STRAIN

of 3-banded Italians, Gentle, Hardy, White Cappers, Hustlers for Honey.

Select untested—\$1.00 each.

Select tested—\$1.50 to \$2.00 each.

No disease, safe delivery, a square deal.

Send for descriptive price list, free.

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INCREASE YOUR HONEY CROP

by introducing some of Leininger's strain of Italians. Have been a breeder for 25 years. No better bees in America. Untested one \$1.00, six \$5.00. Tested one \$1.25, six \$6.00. Breeders, \$10.00 each. During August and September we will sell tested Queens, one year old, at 80c each. Will guarantee ever-once.

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LEATHER COLORED ITALIAN QUEENS

NOW READY

Untested Queens, \$1 each, \$10 doz., or 75c. each in lots of 25 or more. Warranted purely mated Queens, \$1 each, \$12 doz. Tested Queens, \$1.50 each. Breeding Queens, \$5 each.

I can fill your order for one queen or by the hundred and guarantee you a square deal.

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QUEENS AND BEES

We can supply choice leather colored Italian Queens promptly at the following prices:

	1	6	12
Untested	\$1.00	\$5.50	\$10.50
Tested	1.50	8.50	16.00
Select tested	2.00	11.25	22.50

For prices on larger quantities please write us.

We offer bees in pound packages from the same stock as above as follows after July 1st:

	1 lb.	2 lb.	3 lb.
	\$1.50	\$2.50	\$3.50

These prices do not include a queen. Add price of queen you may select to price of package when ordering. Safe delivery guaranteed. Full directions for handling sent with each shipment.

A full stock of bee-keepers' supplies always on hand for prompt shipment. Catalogue on request.

We Want More Beeswax.

F. W. JONES - BEDFORD, QUE.

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We will both be disappointed if you do not order a half dozen of our select untested Italian Queens at six for \$4.00. 1 lb. Bees with Queens, \$2.50. We have a number of satisfied Canadian customers. We want you too. Circular Free, write

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Untested	1	6	12
	\$1.00	\$5.50	\$9.00

Tested, the same price.

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Plans, "How to introduce Queens," 15c.

"How to increase," 15c.; both, 25c.

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QUEENS

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Untested Queens, \$1 each, \$5 for six
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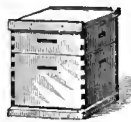
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than what you already have in the Queen and Bee line, try one of the Atchley Dollar Queens. I make a specialty of Dollar Queens, or \$10.00 per doz. Good, strong two-frame nuclei with Untested Queen, \$2.50 each; three-frame, \$3.00. Safe arrival and satisfaction guaranteed.

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Tested Strait	75c. each
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Bees per pound	\$1.00
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Bees more beautiful, more gentle, more industrious, the best honey gatherers. PRIZES—VI. Swiss Agricultural Exposition, Berne, 1895.

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The highest award.

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Fourth Dominion Conference

The Dominion Minister of Agriculture has called a conference composed of delegates from the various provincial fruit growers' associations to meet in Grimsby, Ont., September 2nd, 3rd, and 4th, to discuss subjects of vital interest to the fruit growing industry of Canada. It is expected that certain standards of packages grades of fruit, and methods of transportation will be recommended for adoption for the whole country. The object of the conference is largely that the minister may come in direct contact with the representatives of the fruit growers and shippers, and discuss with them methods whereby the fruit growing industry may be developed in the best possible way.

Delegates have been appointed from the different provinces as follows:

Prince Edward Island—Murdock McKinnon, Charlottetown, A. E. Dewar, Charlottetown, Theodore Ross, Charlottetown.

Nova Scotia—S. B. Chute, Berwick, S. C. Parker, Berwick, F. W. Bishop, Paradise, Prof. P. J. Shaw, Truro, W. W. Pineo, Waterville, A. E. McMahon, Aylesford, Manning Ells, Port Williams, W. H. Brittain, Truro.

New Brunswick—C. N. Vroom, St. Stephen, A. G. Turney, Fredericton, S. B. Hathaway, Fredericton, W. B. Gilman, Fredericton.

Quebec—Robt. Brodie, Westmount, N. E. Jack, Chateaugay, T. G. Bunting, MacDonald College, Dr. F. C. Harrison, MacDonald College, Father Leopold, La Trappe, H. A. Dickson, Rectory Hill, R. A. Rousseau, Acton Vale, Representative of Quebec Department of Agriculture (not yet named).

Ontario—F. S. Wallbridge, Belleville, C. W. Gurney, Paris, A. W. Peart, Burlington, Robert Thompson, St. Catharines, Walter Dempsey, Trenton, P. W. Hodgetts, Toronto, John Brown, Brighton, Elmer Lick, Oshawa, A. E. Kimmins, Winona, Dr. A. J. Grant, Thedford, A. Onslow, Niagara-on-the-Lake, R. W. Grierson, Oshawa, J. W. Crow, Guelph, M. Snetsinger, Thornbury.

Manitoba—Professor. G. W. Broderick, Winnipeg.

British Columbia—W. C. Ricardo, Vernon, W. S. Foggo, Vernon, Jas. Rooke, Grand Forks, R. M. Winslow, Victoria, John E. Reckie, Kelowna, J. C. Metcalfe, Hammond, Thos. Abriel, Nakusp, Representative of Okanagan United Growers (not yet named.)

Prolonging the Season

John Donaldson, president United Fruit Companies of Nova Scotia, says: I have long considered the prolongation of season, of some of our choice varieties, e.g., the season of the Gravenstein, Nova Scotia's great apple should be extended to embrace the Christmas home markets, that is to have the season extended from first September to Christmas. What quantities of that delicious apple could be consumed if we had that extension of time! What prices we would obtain in the far western markets, if by some system of pre-cooling both apples and cars, we could see that apples arrive there during even a whole month in the pink of condition.

Again, the season of the Ribston and King must be extended in the foreign markets, from October to January, if we are to make those varieties the most profitable. Spies and some other varieties should never be placed on our own markets before April, and the season should then extend to July.

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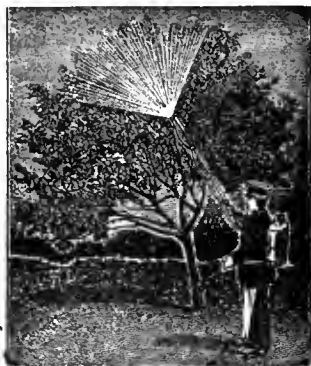
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British Columbia

Several appointments of interest have recently been made by the Provincial Government in the horticultural branch of the Department of Agriculture.

F. L. Goodman, who has just completed his third year at the Ontario Agricultural College, will be in temporary charge of work which will cover investigations in the Cold Storage of Apples—the shipments of rhubarb, pre-cooling, careful handling and transportation of strawberries and raspberries; the operation of the pre-cooling plant on tender fruits at Summerland and handling experiments with the various orchard fruits; investigations of the suitability of refrigerator cars, etc.

T. C. Sanderson, an Ontario Agricultural College under-graduate, who has just completed his third year's work, has been appointed vegetable expert and will be at work for the next five months. He will be in charge of experimental investigation work and general instruction work in the vegetable industry of the province, especially in the Lower Mainland, for the present year.

W. W. Hayes, who graduated in horticulture from the Ontario Agricultural College, Guelph, in June, has been appointed as assistant horticulturist.

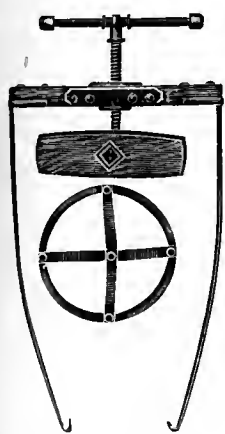
L. F. Burrows has completed his third year's work in horticulture at the Ontario Agricultural College, Guelph, and has been appointed temporary assistant to P. E. French, assistant horticulturist at Salmon Arm.

E. C. Hunt, a graduate in agriculture of the W.S.C., Pullman, Wash., took up his duties on the 15th February as assistant to M. S. Middleton, in charge of Pruning Schools in West Kootenay, and on the 1st May took charge of the blight control work at Grand Forks.

H. M. Scott has taken third year's work at the Ontario Agricultural College, Guelph. He will be temporary assistant to M. S. Middleton, and have headquarters at Nelson.

M. H. Howitt, graduate from the Ontario Agricultural College, Guelph, 1913, who has been in the Fort George district, has been appointed temporary assistant to A. H. Tomlinson, assistant horticulturist, Prince Rupert.

M. H. Ruhmann, who has been on blight control work at Grand Forks for several months, will go to Vernon as assistant to the pathologist and entomologist, which position has been filled by the appointment of J. W. Eastham, lately assistant to H. T. Gussow, Dominion Botanist.

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OF WESTERN ONTARIO

Special Railway Rates for Exhibitors and Visitors.
Prize Lists and all information from the Secretary, London, Ont.

W. J. REID, President
A. M. HUNT, Secretary

Late Fruit Crop Reports

The following telegraphic reports dealing with fruit crop conditions were received by the Dominion Fruit Commissioner, and published under date of July 15th:

New Brunswick—(Province has splendid young orchards, but not yet producing sufficient fruit for home consumption). Apple crop promises seventy per cent. crop only, a few orchards injured by frost. Scab showing very little. Summer and fall varieties heavier than winters. Size and quality good. Raspberries promising well.

Nova Scotia—Weather conditions favorable. Very little spot showing. General estimate of apple crop too large. The crop will be, at most, one million barrels. Spy, King, Russet, Wagener, Bellefleur, Baldwin, and Ribston leading. Nonpareil, Blenheim, Fallwater, Stark, Gravenstein, and Ben Davis light. Crop last year 650,000 barrels, 1912 1,000,000 barrels, and in 1911 a record crop of 1,750,000 barrels.

Quebec—Most sections looking well. Fameuse and McIntosh dropped heavily, but sufficient left on trees for good crop. Cherries heavy crop. Bush fruits good.

ONTARIO CONDITIONS.

Lambton—Apple crop forty per cent. above 1913, and fifteen per cent. below 1912. Weather has been hot and dry for six weeks, with sufficient drop to prevent thinning. Favorable showers this week and well sprayed orchards will have a good commercial crop of clean fruit. Plums and pears fair to good, but much lighter than last year. Grapes promise a good crop.

Norfolk—Crop one-third heavier than 1913, and one-third lighter than 1912. Fungus prevalent, but quality is good in orchards that have been well sprayed.

Huron—Crop about twenty-five per cent. heavier than 1913, in spite of heavy drop. Quality will be good. Plums light.

Counties North of Lake Ontario—Prospects not so good as expected. Drop has been heavy. Crop will run about same as last year, or about twenty-five per cent. less than 1912. Fruit well distributed and all trees bearing. Weather conditions fair.

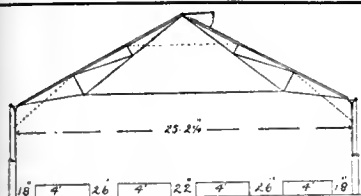
BRITISH COLUMBIA.

Okanagan Valley—Long, dry spell was broken by rain. Quality of apple crop excellent. Total crop will approximate 1,000 cars, which is equal to the crop of 1912 and twenty-five per cent. greater than 1913, with Wealthy, Jonathan, Wagener, and McIntosh heaviest. Pears twenty per cent. increase over 1913. Tomato acreage increased twenty-five per cent. Peaches a fair crop totalling 50,000 twenty-pound boxes.

United States—Western New York crop is slightly less than 1912, and double that of 1913. States of Washington, Oregon, Montana and Idaho average eighty-one per cent., as compared with eighty-four per cent. in 1913, and ninety-one per cent. in 1912.

London, England—Latter half of June very dry, but rain general during early part of July. Present conditions favorable. Plums about average. Kente and neighboring counties show fair apple crop. Midland counties very uneven.

Last year the United Fruit Companies of Nova Scotia Ltd. bought for its members: 575,000 pulp heads, 35,000 lbs. nails, 67,800 lbs. grass and clover seed, 22,745 lbs. seeds various, 48,300 vetches, 4,500 bus. seed oats, 2,060 bbls. flour, 19,649 bags of feed, 6,044 tons fertilizers 104,000 lbs. arsenate of lead, 8,900 rods wire fence, 1,800 bbls. lime sulphur, 2,200 lbs. Black Leaf 40. These supplies cost in round figures \$183,000. Fire insurance risks for \$450,000 were handled.

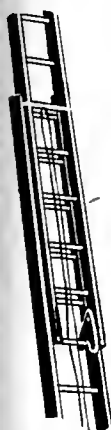


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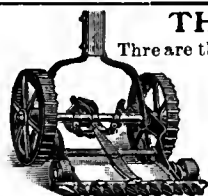
174 York St., HAMILTON, Ont.

Speaking of the coming Dominion Fruit Conference, Mr. Johnson, Dominion Fruit Commissioner, stated recently that four great questions of interest to apple growers would be considered: First, Cooperation; second, Transportation; Third, Inspection at Point of Shipment; fourth, Marketing. He said that Ontario had asked for inspectors who would also be instructors, men who would go into the warehouses and instruct the foreman and managers rather than men who would open packages and inspect at the terminal points. He realized that markets was the all important question. If markets could not be obtained, and held and enlarged, what would be the use of raising apples?

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Having to reduce my stock of bees I offer for sale a few hives. All bees on good straight worker combs in factory-made frames, 8 frames to the hive.

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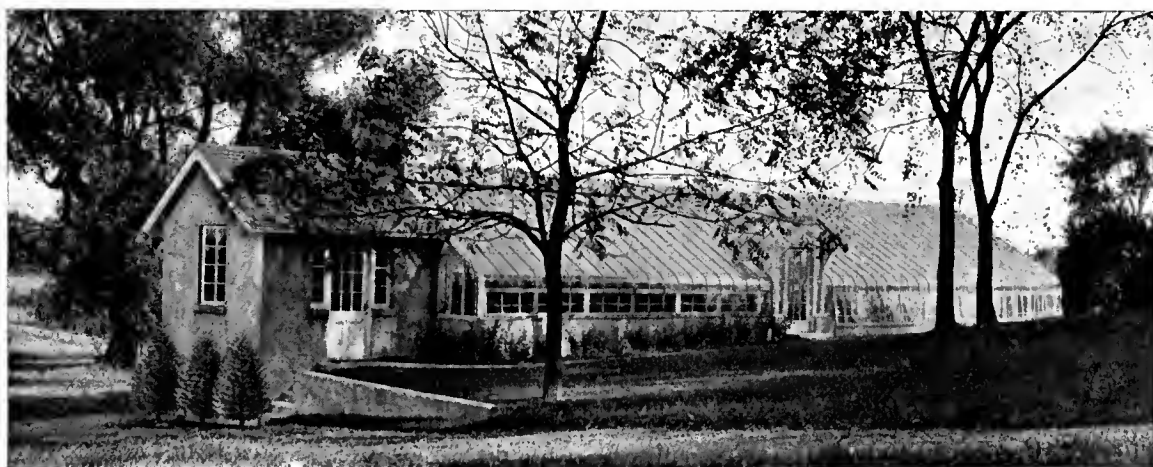
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Steel Railing around edges. Steel Runners. Bevel Corners. 7 ft. by 2, 2 1/2 or 3 ft. Write Dept. N. for Folder and Prices.

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FOR SALE—House and grounds, suitable for apiary. Bargain.—Mrs. J. Kendrick, New Dublin, Ont.

FOR SALE—25,000 lbs. white honey. Will go to the highest offer.—Jos. Martineau, Montserrat, Que.

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FOR SALE—By return mail, Root and Moot strain select tested Italian Queens, \$1.00 each, untested 75c.; breeders \$2.00; grades 50c., no disease.—Wilmer Clarke, Box 200, Earlville, Mad. Co., N.Y., U.S.A.

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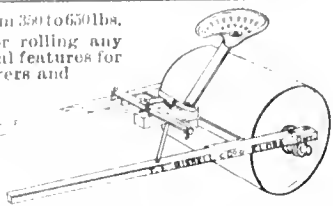
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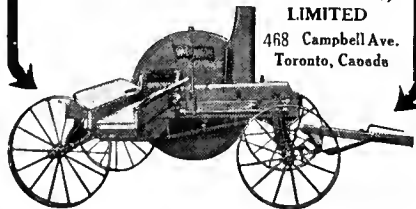
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If you pack apples in boxes, this machine will be a great convenience to you and will save you time and money. Write for prices to

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British Buying Methods Changed

For years Canadian apple shippers have complained against the system of buying and selling apples by auction that has been followed in Liverpool. During the past two years this system has been changed for the better largely through the efforts of Mr. I. N. Chute, European representative in England of the United Fruit Companies of Nova Scotia Ltd. At the recent annual meeting of the company the Board of Management referred to this change as follows:

In last year's report Mr. Chute explained in detail the system under which fruit was handled in this important market; he explained the operations of the various organizations, the Importers' Association, the Brokers' Association and the Buyers' Association. Strong protests have been made for generations by apple shippers from all parts of the world, especially concerning the operations of the Buyers' Association, who had the monopoly of the auction rooms and who persistently refused to allow any but members to buy in the rooms. Such protests, however, have always been in vain because there was no organization powerful enough to withhold supplies and thus compel recognition.

We are unable to go into details as to how it has been accomplished but have the satisfaction to be able to report to you today that any firm of good financial standing and clean business record can enter the auction room and bid for your apples, so that in future instead of a few men being able under certain conditions to fix the prices they will pay before the sale commences, your apples will be sold to the highest bidders drawn from all parts of the country, many of whom have previously had to pay the old Buyers' Association as high as fifty cents a barrel profit.

The fact that this extra competition means enhanced prices and prevents market rigging is of course apparent. In addition to this, none of your apples are now tolled by the Importers' Association, saving in that direction approximately twenty cents on every barrel.

We feel that this is the most important achievement of The United Fruit Companies of N. S. Ltd., and feel sure that all cooperators will share our satisfaction in the knowledge that it is by their concerted action alone that this sweeping reform has been brought about.

Australian Fruit Exports

Complete figures in regard to the exports of Australian fresh fruit for the 1914 season are not yet available. The subjoined table shows, approximately, the totals for the season, compared with 1913. The Hohart figures establish fresh records for Tasmania, which is the principle apple-growing state:

Tasmania to United Kingdom, 1913, 465,103 cases; 1914, 766,703 cases. Tasmania to Germany, 1913, 17,275 cases; 1914, 72,175 cases; Tasmania to South America, 1913, 115,763 cases; 1914, 37,308 cases. Total for Tasmania, 1913, 598,141 cases; 1914, 876,186 cases.

Victoria to European ports, 1913, 580,154 cases; 1914, 352,055 cases. South Australia to European ports, 1913, 37,864 cases; 1914, 100,588 cases. Approximate total to May 7, 1914, 1913, 986,159; 1914, 1,328,829.

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The Canadian Horticulturist

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The Exhibition of Fruits

Prof. T. G. Bunting, Macdonald College, Que., President Quebec Province Fruit Growers' Association

THE successful exhibition of fruit is a study that largely comes through practice and experience. It requires a knowledge of what perfection is in the different varieties, as well as how to exhibit fruit in its most attractive form.

A comparatively small percentage of fruit growers will make any pretence at exhibiting their produce. There are plenty of reasons they may give for not doing so. One frequently heard is that their fruit is not good enough.

There is nothing that will so surely encourage a man to grow good fruit as exhibiting and competing for honors at the various exhibitions. It is largely through our exhibitions that our most prominent judges and pomologists get their experience, as here they can see large numbers of fruits of the various varieties, grown under different conditions, competing side by side. No one man can be expected to grow all varieties, and have them at their very best. Thus his experience will be more or less limited until he comes in contact with the larger exhibitions.

Another reason that is sometimes given by the average man for not exhibiting is,—he would have no chance against the larger exhibitors some of whom have been exhibiting for years on a large

scale. Naturally they have profited by their past experience and know just how to get the most out of their fruits, not only in exhibiting but also in growing it. But this does not in any way preclude the small grower from securing a fair share of the awards.

JUDGING

Judging is a difficult position for any man, even of wide experience, especially at the larger exhibitions, and it is true judges do not always agree in their decisions. When we consider that judging consists of balancing up the good and bad points of the different exhibits and then placing them in their relative positions, we can see how difficult it would be to obtain at all times the same placing by various judges. Frequently they are called upon to judge fruits which are below the average and which contain many defects. Then it may be a case of choosing the plate with the least or less serious defects, and in such decisions there may be room for dispute.

Our exhibitions have been one means of training our fruit growers and professional horticulturists in pomology and giving them the practice and experience necessary to qualify as judges. Any professional or amateur fruit grower may feel sure that he will be given a fair

chance at our exhibitions even when competing with the largest exhibitors.

To win a prize should be an honor more highly prized than it sometimes is. At some of the fruit exhibitions as many as fifty to a hundred exhibitors may be competing in the same class for some of our better known fruits, and competition must of course be keen. Those who are unsuccessful—if having the right spirit—will make even greater effort the next year to produce the prize winning fruit.

SELECTING THE FRUIT

The selection of fruits for exhibition purposes will bring out all the finer points of the different fruits, and one cannot really know the number they may possess until he comes in contact with individual fruits in making these selections. A tree of Crawford peaches will have no two alike and when one comes to select five specimens for a plate, he should have some ideal in mind and each should conform as nearly as possible to that ideal. This tends to produce uniformity which should be one of the first things required, even if the plate does not possess some other quality in as high a state as one would like. An unusually large or very highly colored specimen on a plate with others, will



A British Columbia Packing School in Operation. These Schools are conducted in Leading Fruit Districts and have been Productive of much good.



Packing Apples in an Ontario Packing House

not produce uniformity and will hardly secure the prize unless the other plates are markedly inferior. Uniformity cannot be too greatly emphasized in fact one would make no mistake in placing this point before all others. Uniformity consists in having each specimen like all others on the plate as far as size, form, color, freedom from blemish, maturity, and so forth, are concerned.

Freedom from blemishes should be rigidly insisted upon. Many will pick up a plate consisting of one or more wormy apples which of itself should be sufficient to put the plate outside of first place, because the prize-winning fruit should be at least No. 1, and a wormy fruit is certainly not. Too often this point is not given enough attention. Small scab spots, scale insects, bruises, broken stems, and so on, may be found on the fruits that are sometimes exhibited. These should never be allowed. They have frequently been the means of losing first prize for otherwise good fruit.

REQUIREMENTS TO OBSERVE

In order to choose good color, one should know what good color is in the variety under consideration. Abnormally high color is not to be desired, but good color for the variety with all other points equally developed, should produce a plate of the right kind of fruit.

Good color in fruits is usually found on specimens grown in the sunlight individually rather than in pairs or clusters. Most fruit have a natural bloom and this should be preserved without any unnecessary rubbing in handling.

Form, which is almost as important as color, should be as nearly normal for that variety as it is possible to have it. One familiar with fruit will know that the majority of varieties have a distinct

form peculiarly their own, and the nearer this form the better.

One will occasionally look for the largest specimens obtainable. These are usually overgrown, coarse and poorly colored and are seldom to be desired. Specimens somewhat above the average in size with a nearly ideal form, high color and free from blemishes, are the most valuable for exhibiting. Just how large or how small they should be will depend on the other factors that go to make the individual. Avoid abnormal specimens. Quality and texture are largely judged by color and finish. Specimens should be mature, or nearly so, at the time of exhibiting, and for this purpose one has recourse to retarding or hastening maturity for the exhibition. Cold storage should be resorted to when necessary to hold the fruit a considerable time. A cool and comparatively dry place will answer for holding the fruit a short time.

The season of the different varieties is a varietal difference and varies somewhat with the different seasons. The fruits on a tree are not all at the same stage of ripeness at one time, and earlier or later specimens can be chosen as required.

In collections one must know the relative value of the different varieties in order to determine what varieties should go in a specified collection. This is largely gained by experience and comparison with the winning collections.

Score cards are excellent as an aid to standardizing our ideas as regards fruit, and can be followed with profit by anyone intending to make his first exhibits. As experience is gained one unconsciously fixes in mind the points that are important and seeks these in making all selections.

The Prairie Markets

F. C. Hart, Department of Agriculture, Toronto

THE conditions which obtain this fall with regard to the western market for Ontario fruit are without precedent. Nobody knows what is going to happen, and it is impossible to prophesy. We can readily understand, however, that for Ontario the west may be the main market. The difficulty is in forecasting what the consumption will be, and how this consumption will be supplied by apple growing sections other than Ontario. Nova Scotia has a large crop this year and their markets across the water will be seriously curtailed. An endeavor is being made to find a market for some of their fruit in South America. If however, quantities from Nova Scotia are sent west it will have an effect on the market.

Financial conditions in the west are reported not to be of the best. This will have an effect on consumption. A good deal depends on the decreased western crop finding a profitable market on account of the war. A large part of the British Columbia apple crop has been offered to England by the Government. The apple growing sections south of the line however, have a good clean crop, and much of this fruit will, as usual, seek our western market. Various possibilities are open. It may be that the prairie provinces will be flooded with apples from Ontario, Nova Scotia and the United States. This together with lack of money in the west may make this market a very poor one. On the other hand conditions may cause a material increase in the price of all food products, in which apples will have a share, although not to the same extent as the more staple articles of food. There seems to be no doubt that the western grain crop will find a good market this year, and this to some extent will relieve the financial strain that at present exists, so that the market for apples may not be as difficult as might be anticipated.

In view then, of the uncertainty of the western market and of the partial stoppage of our usual export market, Ontario growers should ship only their best fruit of their best varieties west this year, and even then it is likely they will have to be satisfied with lower prices, as the expected prices may not be realized if an endeavor is made to bring up the total returns by shipping inferior grades and varieties. In view of the financial conditions, care should be taken to ensure returns. Credits should be closely watched.

Many customers will buy a box who will not buy a barrel. Boxed fruit is more easily handled.—C. J. Thornton, M.P.

Modern Marketing Problems—How we are Meeting Them

R. M. Winslow, B. S. A., Provincial Horticulturist, Victoria, B. C.

FRUIT growing in British Columbia has in it many of the elements of a liberal education. One can hardly hope to succeed without a practical mastery of the problems of marketing as well as of culture and packing. Thus the members of our large cooperative organizations, who pay capable men to handle their marketing must constantly be studying changing problems of market demand and competition, if they are to continue to give confident support to the men they employ to sell their fruit. Many kinds of British Columbia fruit do not lend themselves to cooperative sale and for these lines the individual grower must be his own salesman.

Practically ninety per cent. of all British Columbia fruit that is sold goes to consumers at least four hundred miles away. Probably not more than five per cent. of our fruit is marketed within ten miles of the point of production. Ten per cent. of our apples are marketed from six hundred to twelve hundred miles from home. Such conditions require some study of geography and trade routes, to say nothing of the study of human nature at long range. Because of the long distance from markets and the varying climatic and soil conditions, British Columbia fruit growing lends itself to specialization and, on the whole, requires highly perfected organization for its success.

A PRESSING PROBLEM

One of the most pressing of marketing problems is that of increasing production. In 1900, British Columbia had 8,000 acres in fruit; in 1910, this was increased to 33,600 acres, and in 1913 to 38,200 acres. Of the total planting, not twenty-five per cent. is yet in bearing, but the total production increased from the value of \$200,000 in 1903, to \$1,030,000 in 1913. The 1914 fruit crop on the whole will be 20 per cent. to 25 per cent. greater than in 1913, but the total value will also increase, though not quite in proportion.

The values given are not nearly as great as credited to the crop of 1910 by the Dominion census officers, but it represents only the product handled in recognized commercial channels, and the values are on a f.o.b. basis.

This increasing production, in view of the large market for high class fruit, would be more of a pleasure than a problem if it was not for a steadily increasing production in the north-western states of Oregon, Washington, Idaho and Montana. In these four states, which had practically no fresh fruit industry twenty years ago, there are now over 280,000 acres planted in fruit, which have every reasonable prospect of

commercial success, and an almost equal amount of orchard which is not likely to do so well, but will still add materially to the production. The north-western states moved only about 2,000 carloads of fruit in 1912, but in 1913 they had 16,000 carloads of apples alone, and in 1914 they will have about 15,000 carloads of apples, about 4,000 carloads of peaches, pears, plums and prunes, and over 200 carloads each of apricots, strawberries and cherries, and over 300 carloads of raspberries, in all of which lines British Columbia growers must face formidable organized production, capable of shipping straight carloads of fruits into our markets just as our own crops are coming on.

WHAT COMPETITION NECESSITATES

Increasing production and increasing competition will compel our growers, with a new industry on their hands, to be constantly on the alert and to cut cost of production as low as possible consistent with efficiency. Over the whole of the province, cooperative organizations for the purchase of fruit growers' supplies and for the sale of their products have developed. Many of these handle flour and feed, spray materials, and other similar commodities, while in some cases fruit growers are operating highly successful retail businesses in household supplies. Both in the markets of the coast and the prairies, the principal factor in determining our prices and even the entry of our products into these markets, is competition from the north-western states, and the continuous adjustment of British Columbia fruit marketing to meet competition is the most important consideration.

We are being compelled in a multitude of ways to meet American competition.

Most important is the constantly rising standard of perfection in grading, packing, and particularly in the matter of the weight of fruit per package, on all of which our markets are very critical.

The British Columbia packages are, in general, very closely copied after those of the north-western states and California, but changes in their particular styles have to be followed more or less closely by us to meet their competition. Taking a striking and fresh instance: It is generally known that the United States Government has finally passed a law creating two standard boxes for berries, a full pint holding 33.7 cubic inches and a full quart holding 67.4 cubic inches. The Canadian standards are two-fifths of a quart, which is 27.7 cubic inches, and four-fifths of a quart or 55.5 cubic inches. North-western strawberries were shipped into western Canada in dozens of car loads packed in the full pint crate. The consumers made practically no distinction in price between the American full pint and our four-fifth quart, which held one-half more berries. The fact must be said that the consumers took very kindly to the full pints as against our four-fifths. The Dominion Inspection Service do not require it to be marked short in the regulations and in consequence our growers must in 1915 adopt the full pint.

The full pint is also used for American raspberries as against our two-fifths quart, which holds about nine ounces as against ten and a half ounces in the pint. The advantage in this case was on our side, but the trade handling American berries objected strongly to handling our haddock of less capacity, and it is likely if not next year, the following year, we will be compelled to come to the full



Fruit Packing on the Fruit Farm of J. W. Smith, Winona, Ont.

pint for raspberries. It will be used experimentally next year by the Department of Agriculture in cooperative experiments.

All apples from the north-western states are marketed in a box $10\frac{1}{2}$ by $11\frac{1}{2}$ by 18 inches, that has practically the same cubic capacity as our own, which is 20 by 11 by 10, but it has the favor of the trade and the consuming public to such a degree as to warrant our adopting it for our Canadian business. Over one-half of the British Columbia apples this year have been marketed in the so called American box to

meet the demand, and it is found to be facilitating sales considerably.

I am of the opinion that, generally speaking, where the trade favors American practice, as to packages, grades, packing, and so forth the most effective way of meeting competition is to adopt the American standards. Because of the fact of our Federal law governing many such matters and of the natural conservatism of British Columbia fruit growers, we do not as quickly arrive at conclusions with respect to trade practices as do our north-western competitors.

(To be continued.)

Packing Fruit for Exhibition and Market

E. F. Palmer, Assistant Provincial Horticulturist, Toronto, Ont.

THE box package has been rapidly gaining in favor throughout Ontario during the past few years because of its superiority as an apple package only. It is reasonable to expect too, that it will continue to gain in favor until a large percentage of Ontario's No. 1 apples, at least, are marketed in this way. And, in the face of competition with western box packed fruit together with the fact that the markets for our best fruit are gradually coming to prefer the box package it is certainly no mistake to begin to use, or continue using, the box.

It would seem also that if the present European War is long continued, only the best fruit, the most attractive, will find a ready sale for this season at least. Prices on necessities are already going up rapidly at the time of writing (13th August), and this will mean that many people who, under normal conditions buy considerable fruit, will be unable to afford any. Fruit must be regarded as a luxury, not a necessity, and while the price of one goes up the other must go down in proportion. It must also be borne in mind that Europe and particularly Germany, is a large consumer of American apples. If this market is cut off this year, as seems likely, there will be much more fruit to be disposed of on the home markets. In the face of these last conditions, it is evident that fruit growers should make every effort this year to put out only a clean, honest, attractive pack, whether in boxes or barrels.

STYLES OF PACKS.

Of the three common styles of packs, the straight, the diagonal, and the offset, the diagonal has much the most to recommend it, and is used far more than either of the others. With the straight pack each apple rests directly on the one below it and there is, therefore, great danger of bruising. With the diagonal pack, no one apple rests directly on another, but cushions in between the apple below, thus greatly reducing any

chance of bruising. The diagonal pack lends itself to a much greater variety of sizes and shapes of apples. It is far easier to make a good commercial pack with it and more weight is secured to the box as the apples fit more into the crevices, making less waste space.

The third system of packing—the offset—is generally considered inferior to



3-2 Diagonal; 5 Layers—100 Apples

the diagonal. However, it is sometimes desirable to use it with inexperienced and unscrupulous packers, as any defect in the pack is easily detected. With the diagonal system it is much easier to vary the size of the fruit in the bottom and centre layers without materially spoiling the appearance on top. Again, in the offset pack the spaces show at the sides, giving the box an unfilled appearance, whereas, in the diagonal, only small spaces occur, and these at the ends of the box. Another point against the offset is that it contains from four to twelve apples less than the diagonal, making the box light in weight.

The term diagonal comes from the fact that the rows do not run straight across the box, but go at an angle. It includes the commonly called 2-1, 2-2,

and 3-2 packs. In beginning the 2-2 pack, an apple is placed in the left-hand lower corner of the box and another midway between the cheek of the first apple and the right hand side of the box. Two spaces of equal size will then be left. Into these spaces two apples are placed, it being understood that the apples are too large to fit across the box. The spaces left by the last two apples placed are then filled, and so on, until the layer is completed. The second layer is packed in the same manner, except that it is started in the lower right hand corner for the half-tier packs. This throws the apples of the second layer into the pockets formed by the first layer. When completed the third layer will be directly over the first layer and the fourth over the second.

In the straight packs the rows run straight across the box and parallel to the sides. It is very neat in appearance, but as stated above, it is rather severe on the fruit, as each apple presses directly against surrounding apples rather than into the crevices. As the straight pack should be discouraged on account of its several faults, no description of how to pack will be given here. It is necessary to remember only one thing; the apples must fit snugly across the box lengthwise and in height. It is quite apparent then that a comparatively small percent. of an orchard run of apples will be of right size to pack properly in the straight pack. If the accompanying illustrations are studied, the idea of the different packs can be seen and understood far better than from any descriptions that can be given of them.

The off-set pack, with ordinary sized apples, is started by placing three apples firmly together cheek to cheek in the lower end of the box with the first of the three in this row against the left hand side. The space then left is all on one side of the box. In this space the first apple of the three constituting the second row is placed. When the remaining two are in, the space will be on the left hand side. The layer is thus completed, the space alternating from side to side of the box. The second layer is started in the right hand lower corner by placing the apples into the crevices formed by the apples of the first layer. In the completed box the alternate layers will then be directly over one another. For this pack, as in the diagonal 2-2, it is necessary to have apples too large to fit four across the box. Similarly the 3-2 diagonal requires apples too large to go five across.

In the straight pack, before the lid is nailed on, the apples at either end of the box should come up a little better than flush with the top. With the diagonal the ends should be a little higher—about

one-quarter of an inch to three-eighths of an inch in all. Then from either end there should be a gradual bulge amounting at the middle of the box to about one and one-half inches. Thus, when the lid is nailed on thoroughly, there will be a bulge of practically three-fourths of an inch each on top and bottom. Less bulge is desirable with the straight packs on account of their unyielding nature. There is no settling of the apples into the crevices as in the diagonal.

The proper bulge is obtained, in the straight pack especially, by selecting apples that are a trifle smaller for the ends. With apples that are being packed on the cheek, it sometimes becomes necessary to turn the end rows flat to ensure the desired bulge, and at the same time have the ends low enough.

In the diagonal pack the small spaces left at the ends of each layer aid materially in securing the proper bulge. This, and pulling the apples tighter towards the centre of each layer, is sufficient to give the necessary bulge in wrapped fruit. By packing closer in the centre you close the pockets between the apples more, and the next layer will not go so deep down in, and therefore builds up the centre. The ends being left a little looser, the pockets are opened a little more and the apples drop in further, and therefore do not build up so high. Practice alone will give the knowledge of just how tight to pack the centre or how loose to pack the ends.

Then unwrapped, of course, this difference in firmness cannot be made



2-2 Diagonal Pack; 4 Layers—56 Apples

and the packer has therefore to take advantage of the small irregularities and differences in the sizes of the apples. The difference in size must not be so great as to attract attention. It is essential to begin the bulge with the first layer of fruit and to pack each layer with the same end in view, placing the slightly larger or higher apple in the centre rows of each layer.

The bulge should form an unbroken arch when the box is finished, so that the pressure of the lid will be equally distributed over the fruit. A bulge high in the centre and dropping off to the sides will not be held firmly in place by the cover, causing the whole pack to become loose.

GRADING.

Without good grading, rapid box-packing is impossible. To do good work and to do it rapidly, the packer must have before him an even run of apples in point of size and quality. In fact, packing, simplified, is simply grading and sizing, then placing the fruit in the box so that it fits systematically and snugly. Unless the fruit is sized properly, it cannot be made to fit systematically.

STEMMING.

To prevent the stem of the apple being bent over by the top and bottom of the box and puncturing the fruit, stemming is practised to some extent. Part of the stem is simply removed by small pincers especially made for the purpose. It is questionable whether stemming is practical in commercial box packing. In barrel packing, where only a small percentage of the apples have to be stemmed, namely, the face layer, it is an economic operation. With boxes however, two layers, the top end and the bottom, or half the apples in the box, are stemmed. For exhibition fruit this may be permissible, but there seems to be a fairly general impression in Ontario that all box packed fruit should be stemmed. It would be far more economical to pack those varieties of apples that require stemming calyx end up or on their side, for stemming must add considerably to the cost of packing. A good packer will pack half a box in the time required to stem the fruit for the top and bottom layers of a box. Thus where he would pack a box and a half when not stemming, he would only pack a box if he were required to stem the fruit. This seems an increase of practically one-third in the cost of packing, which is far too big an expense to overlook.

Wrapped fruit needs no stemming, as the wrappers prevent any puncturing by the stems. The apples give more when the pressure of the lid is brought to bear, tending to obviate any danger. Furthermore, since the fruit is wrapped, it matters very little whether the fruit is packed stem-up, calyx-end up, or on its side.



Offset Pack; 4 Layers—84 Apples

In varieties of apples, therefore, in which puncturing is to be expected, the top and bottom layers may be packed calyx-end up or on their cheeks. There is no serious objection to packing apples on their sides even when unwrapped, and there certainly is no objection to packing wrapped fruit so. It is better, however, to pack the apples on their ends whenever possible and use the side pack only when necessary.

Time to Wake Up.—On our average Ontario farm the tillage and care of the orchard is the most neglected part of the farm work. Spraying, pruning, cultivating, the sowing of cover crops, the scraping off the old bark of the trees and grafting worthless trees to good fruit, is exceptional rather than general.—W. J. Baker, Warkworth, Ont.

Those who admire our fruits as they see them from day to day in boxes, barrels and baskets or on the trees, should be able to see in them real beauty and inspire their minds to produce something beautiful, yet simple, in the way of a trade mark, that would perpetuate and increase our trade in Canadian fruits from year to year.

A man or an association having only a small quantity of fruit to sell can neither command the attention of buyers nor make an impression on the market.—Prof. J. W. Crow, Guelph, Ont.

The Modern Herbaceous Paeony*

H. W. Cooper, Ottawa, Ont.

THOSE who have observed the improvements made by specialists in the modern herbaceous paeony, which is the most hardy of all the showier hardy perennials, now concede to it the premier position as the gayest and most brilliant of border plants. In fact it bids fair to outrival the rose as the Queen of all early summer flowers. It gives its wealth of bloom each and every year with scarcely any attention other than to maintain the fertility of the soil. It is perfectly hardy, standing our winters in the most exposed positions without injury and without any protection whatever. In fact it is now conceded that this plant is better without winter protection, the frost aerating and sweetening the soil.

Paeonies are beautiful from the moment their carmine stems and leaves push through the ground in early spring until flowering time when they are the glory of the garden. Their foliage is ornamental throughout the summer, and again in early autumn when their foliage is changing into rich bronze and red tones as the early hoar frosts begin to ripen them. The fragrance of the modern paeony in some varieties is redolent of the purest attar of roses; others resemble that of violets, and others that of the carnation.

SOIL AND LOCATION

Any soil or situation suits the herbaceous paeony. They are indifferent as to whether the soil is light or heavy, or whether they be planted in full sun or half shade, in beds by themselves, in the border or in the grass. To get the best results the ground should be dug to at least two feet in depth in plenty of well rotted cow manure or other suitable fertilizer added before planting. Great care must be taken to see that the manure does not come in direct contact with their spindle shaped roots, or the crowns. Growers now agree that this is the cause which promotes the disease they are sometimes subject to.

PLANTING

This is best done in September after the first frosts, or during October. The plants have then matured their growth and root action is dormant for a short time. This permits them to get established without losing a season's bloom.

Propagation may be accomplished by lifting large plants in the autumn and dividing. Make sure that there are one or more eyes to each piece, and immediately replant in suitable soil. Place the crowns not more than two inches below the surface. New varieties are obtained from seed, which is sown as soon as convenient after ripening. The seeds

are planted in a shallow box or pot and covered about half an inch. The pot or box being placed in some quiet, shady spot in the garden and watered occasionally through the next summer. The seedlings appear the second spring after sowing. Give them attention until the autumn when they may be transplanted into open ground and grown on to flowering size, which is usually four years from the time they germinate. If a few seeds are planted each autumn after the first four years you will have new varieties coming into bloom each season, some with single and some with double flowers. There is a possibility of obtaining a new variety of merit worth naming.

The fragrant blooms are of extreme beauty for room decoration. They should be cut just as the bud is expanding. Their delicate tints are not then faded out by the sun's rays, and they will keep in good condition for about a week.

VARIETIES

I will not attempt to say what are the best varieties to grow, for this is largely a matter of individual taste; all the named varieties are good. I will, however name a dozen good sorts, and which are easily procurable at reasonable prices from dealers in this class of plants:

Whites—Early, Festiva Maxima; mid-season, Duchesse de Nemours; late, Marie Lemoine.

Pale Pinks—Early, Umbellata Rosa; mid-season, Eugene Verdier; late, Albert Crousse.

Deep Pinks—Early, Rosa Superba; mid-season, M. Jules Elie; late, Livingstone.

Reds—Early, Adolph Rosseau; mid-season, Felix Crousse; late, M. Krelage.

Anyone cultivating a selection from the above list will be well repaid by the fragrance and the abundance of bloom with which his garden will be filled.

Garden Notes

R. S. Rose, Peterboro, Ont.

Loosen the earth around each plant.

A good tool to use for this purpose is a mason's trowel sharpened at the edges. It gets under the weeds and through the soil easily without disturbing the roots of the plants. Take a section of the bed each day and do it thoroughly. Do not try to do more than you can handle. Do a little at a time, and do it well. It will pay better in the long run than trying to do more and skimping it. In the dry weather it would be a good plan to put around the plants that need more moisture than others the grass clippings before watering in the evening. This will retain the moisture and the plants can drink it in at their leisure. If your garden is a large one it would also be a good plan to water by sections and give each section a good soaking. This is better than watering the whole garden with a light sprinkle, which is worse than not watering at all. The water should reach the roots, and not only go down an inch or two. Surface watering is useless.



Paeony Festiva Maxima: One of the Finest White Varieties in Cultivation

This plant, grown by J. R. Thompson, 53 Ontario Ave., Hamilton, had sixty-four buds on it at once. Several of the flowers measured eight inches across.

*Read before the Ottawa Horticultural Society.

Fall Notes for the Flower Garden

Wm. Hunt, O. A. C., Guelph, Ont.

THE first early fall operation for the plant lover is to take cuttings or slips of any perennial plants that are required for keeping over winter. Coleus, salvia, iresine (Achyranthes), and ageratum cuttings should be taken early in September before cold, chilly nights



A Petunia Plant in January

Prepare this fall to have plants like this next winter. This plant was dug up from the border in October.

appear, as cuttings from these plants do not root successfully after they have been chilled, much less when they have been frozen. Geranium cuttings may be left until a week or so later on, but even these should be taken before the leaves are touched by frost, as they rot much quicker and better.

The best material to root cuttings in is clean, gritty, rather coarse sand, sand that will make good stone mortar. Pit sand, river sand, or rinse sand from the side of a stream or from the roadside will do for the purpose. It should be free from vegetable and woody matter such as leaves, sawdust, or chips. A little light soil with no fertilizer in may sometimes be mixed with the sand but pure sand usually gives the best results. Moisten the sand well and pack it firmly in a shallow box that has holes bored through the bottom for drainage purposes. Empty fish boxes from the grocery store that haddies have been packed in do well for this purpose. Soak these boxes in water before using to dissolve any salt that there may be in them. Flower pots may also be used to start the cuttings in.

Select a healthy growing cutting from a terminal or side shoot. A fairly short jointed cutting is usually best. The base

of the cutting should be cut flat across with a sharp knife close underneath a node or joint of the stem where a leaf stem joins the stem; the texture of the base of the cutting is an important point. It should not be too hard and woody or too soft and pulpy. About the texture of a young tender carrot is about the right texture. Securing the proper texture for the base of the cutting is of far more importance than the size or length of the cutting. Cut off about one-half of the lower leaves close to the stem. Remove all bloom buds and blossoms where possible. The stem of geranium cuttings should be about four to five inches in length; coleus iresine, salvia, and ageratum cuttings about an inch shorter than the geranium cuttings.

SETTING AND CARE OF CUTTINGS.

A hole or drill should be made in the sand deep enough to set about two-thirds the length of stem upright in the sand. Water the cuttings well and set the box in a temperature of sixty to seventy degrees Fahr. Shade them from the hot sun and keep the sand well moistened until cuttings are rooted, which should be from four to six weeks or longer after setting. Pot the cuttings when rooted, singly, into two or two and a half inch pots, or put them in shallow boxes about two inches apart in rather sandy potting soil. The rooted cuttings may be kept in the sand all winter and potted in the spring if the sand is not kept too wet.

KEEPING OLD PLANTS

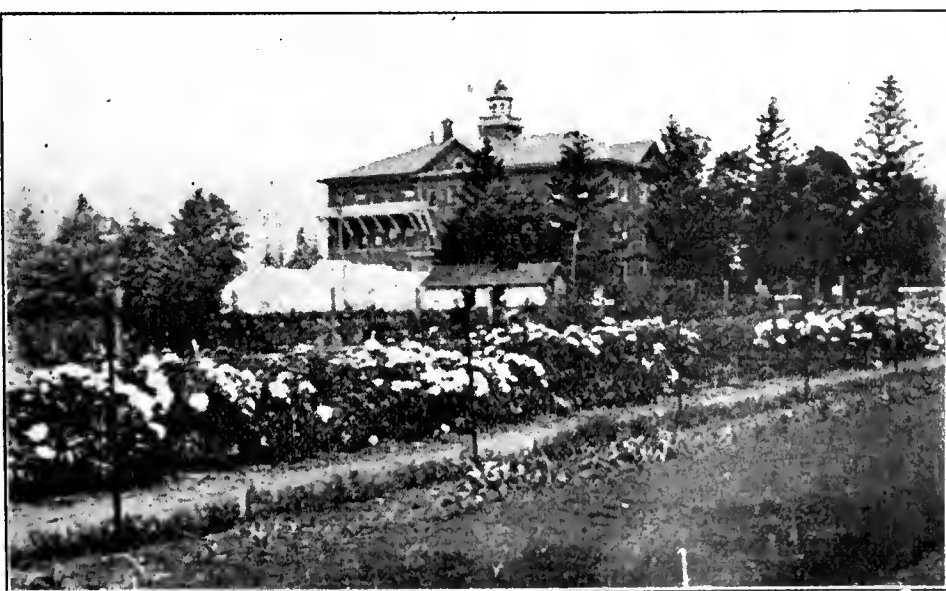
Dig the plants about the end of September before the stems are frozen. Cut the tops well back, about one-half the

growth, and shorten the roots about one-third their length.

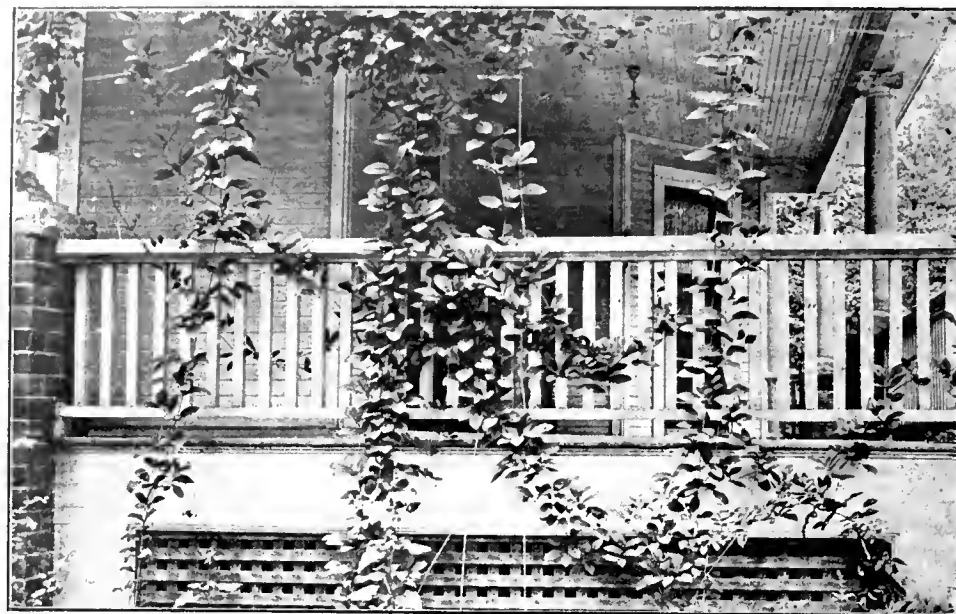
Plant the roots in sand or sandy soil in pots or in shallow, well-drained boxes about four inches deep. The plants may be set quite close together. A box four inches deep and twelve inches square will hold sixteen or eighteen good-sized plants when tops are cut off. Water them well once and set the box in a cool window, temperature about fifty-five degrees. These plants may be potted after five or six weeks' time singly into three or four inch pots when rooted and starting into growth. Or the box or pot may be placed in a light basement or cellar in a temperature of forty to forty-five degrees, and the sand kept only barely moist. These may be brought out into the window in a temperature of about sixty degrees later on, watered and started into growth, and potted singly into four or five inch pots in good soil. Plants treated in this way will usually make splendid plants for the window in spring and for setting out in the border in early June.

OLD PETUNIA PLANTS.

If you have an extra fine double or single flowering plant of petunia growing in the border and wish to save the plant, the top growth can be cut down early in September to within about eight inches of the ground, leaving any young new shoots of growth at base of plant. After a week or so, dig the plant up carefully with all the roots and soil possible attached. Pot the plant into a not too large-sized flower pot, a four or five inch pot, in good soil. Water it well and set it in the window and keep the soil well



Experimental Paeonies at the Ontario Agricultural College, Guelph, Ont.



Cobea Scandens Growing on a Toronto Verandah

moist (not too wet). When well rooted in the small pot which should be in five or six weeks from the time it was first potted, repot the plant without disturbing the root system into a two size larger flower pot. Put some broken pieces of flower pot in the bottom for drainage, and use good, rich, loamy potting soil for this second repotting. Keep the plant in a sunny window in a temperature of fifty-five to sixty degrees, not too near the radiators. The young, non-flowering shoots of petunias will root readily in sand the same as other cuttings mentioned if taken before they are frozen.

FREESIAS.

Six or eight freesia bulbs put into a five-inch flower pot before the end of September will usually produce their sweet-scented blossom by Christmas or New Years. Water the bulbs and put them into the window as soon as potted. A great many people pot these bulbs and put them in the cellar the same as Dutch bulbs to root. This is a mistake. They should be put in the window as soon as potted and kept there until they flower. The plants must be staked and tied up when about eight inches high.

CALLAS.

If callas have not already been repotted in July or August, it would be best now to dig out about an inch or a little more of the top soil and fill in (top dress) them with a good, rich compost of about half dry cow manure and good loamy potting soil mixed together. A little sand or leaf mould or both, about one-sixth part, may be added to this if the soil is at all of a heavy nature. This method of top-dressing, as it is technically termed, is very often better than repotting callas. Many other bulbous

rooted plants can often be treated in this way rather than to repot them, especially when they have passed their regular season of repotting. Callas should be taken into the window before frosts. Do not place them too close to the heat radiators.

FALL PLANTING.

All border plants having thick, fleshy rhizomes or root stocks, such as paeonies, German iris, *Dicentra spectabile* (Bleeding Heart), Funkias or Day Lily, or the *Hemerocallis flava* (Lemon Lily) or the later flowering *Hemerocallis fulva* (Tawny Lily), lily of the valley should be planted or transplanted late in September or early in October. Bulbous rooted lilies such as the Madonna, Tiger and Elegans type of lilies are best planted or transplanted early in September.

Avoid planting German iris or the Funkia or *Hemerocallis* too deeply in the ground. The fleshy rhizome roots of these should be only just under the surface of the soil when planted. Bulbous rooted lilies such as the Madonna and the other varieties named should be planted four to six inches under the surface. In light soils plant fully six inches deep, in clay soils a little shallower. If the lilies are doing well every year, it is best not to dig or disturb them, as they often do not do so well after having been removed or transplanted. It is best to "leave well alone" in connection with the culture of lilies.

After an experience of several years in garden work, I should feel it an irreparable loss to attempt to teach in either a rural or city school without the inspiration which a garden affords.—Harvey Gayman, Jordan Harbor.

Cobea Scandens

J. McPherson Ross, Toronto, Ont.

Cobea Scandens has long been grown as a greenhouse or conservatory climbing plant and under glass is a perennial. Outdoors wherever known, it is one of the most popular of annual climbers.

Being a remarkably free grower and the ease with which it attaches its tendrils to anything convenient to cling to after once established you can almost see it grow. The foliage is a delicate green—leaves oval, regular and free from any known insect, it is to be recommended as a useful plant for covering arbors, trellises and verandahs, while the permanent creepers of slower growth are making headway, such as roses, aristolochin and honeysuckle.

Besides being a rapid climber with nice foliage, *Cobea Scandens* blossoms very freely in tulip-like purplish or greenish-white flowers set in a saucer-like corolla, hence the name cup and saucer plant. It is grown readily from seeds by florists, or anyone for that matter, by sowing early in March or April under glass. Seedsmen usually direct growers to place the seed on edge when planting in seed box or pot, but this is unnecessary. It is a great favorite with city dwellers.

Garden Notes

Lawn grass may be sown early in September, provided the ground is moist enough.

Geraniums and other plants that are to be kept in the house this winter must be taken up in September.

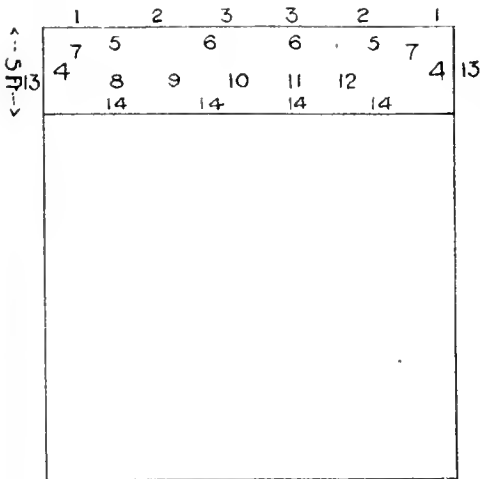
As soon as the leaves fall make hardwood cuttings of the currant about eight inches long and plant them in the garden. They should become well rooted by winter.

Some Uses for Fallen Leaves

Ruby A. Tillett, Hamilton, Ont.

In districts where gardeners have command of or easy access to plenty of recently fallen leaves, they are advised to make the best of their opportunities to get together as large a heap as possible. Unlike stable manure, even a large mass of leaves may be stored quite near the dwelling house without causing any inconvenience. Whenever possible an open shed or other protection should be provided in order to prevent the leaves being constantly wet. These leaves will be found of great value later on for mixing with equal parts of freshly-gathered horse manure when making up the earliest hot beds for forcing bulbs into flowers or such highly-appreciated forced vegetables as asparagus, sea-kale or rhubarb, or such popular flowering plants as begonias, gloxinias, petunias and lobelia.

Where the interior of the house is not suitable for making up a hotbed in the usual way, or other reasons exist why this should not be made up, it will be



Garden Plan A

1, Golden glow; 2, hollyhocks; 3, hardy aster or Michaelmas Daisy; 4, bleeding heart; 5, delphinium; 6, campanulas (Canterbury Bells); 7, phlox; 8, gypsophila (Baby's Breath); 9, doxini-cum; 10, achillea; 11, pyrethrum; 12, gaillardia, Grandiflora; 13, sun flowers; 14, Iceland poppy.

found a really good plan to fill a rather large deep wooden box with this mixture standing it in one corner of the house where it may be covered with large sheets of glass, or failing that, light newspapers. Such a box will be found to retain a steady heat much longer than would have been the case had the box contained only manure; usually long enough, in fact, to allow whatever seedlings are raised in it to become quite sturdy before the heat has entirely left the bed.

If sufficient can be gathered to make up a hot-bed of the usual dimensions for growing cucumbers and other vegetables in frames, the gardener with an eye to the future should take full advantage of the chance, for if these large beds are made up as advised for filling the boxes, the heat after doing duty next hot season, should turn out a small gold mine to those whose aim is to grow universal favorites like begonias, chrysanthemums and fuchsias, to perfection. In fact, if to this mixture is added equal parts of good sound loam a compost well suited for the majority of soft-wooded plants will be to hand.

Others having no glass houses, whose ambitions lie in the direction of large clean roots of almost every kind of vegetable and those of good shape and quality, would find the contents of such a heap very valuable, for even when used liberally, badly shaped or forked roots rarely result. In fact for show carrots, beet roots and parsnips this may be relied upon by the addition of a few potfuls to a barrowload.

The value of fallen leaves as a covering and protection for old stumps of scarlet lobelias, fuchsias and other flowers, may be known to many. A few dry leaves banked around the stems of choice roses often saves them from dying.

Frames, containing lettuce, endive, parsley, or some flowering plants, which do not require much protection in severe weather, can have a good bank round them as another useful way of utilizing fallen leaves. This outside layer not only spares covering material, but as it helps to keep up a greater warmth inside the frame, the plants inside receive greater benefit than when covered only at night.

Even leaves alone, a good heap of them, over well-established crowns of rhubarb and sea-kale, soon start these into growth, and although the growth may be more tedious than when manure is used the result is much finer. The time to do this is after the turn of the days. A piece of wire netting or a tub or box should be placed over the stools before covering them. After this place a wheelbarrow load over each clump.

Simple Garden Plans

R. S. Rose, Peterborough, Ont.

BY laying out your garden in the fall, it can be put into good shape for the spring planting. If the work is all left to be done in the spring there will be too much to do to get the ground into proper shape in time for bedding out plants or sowing the seed for an-

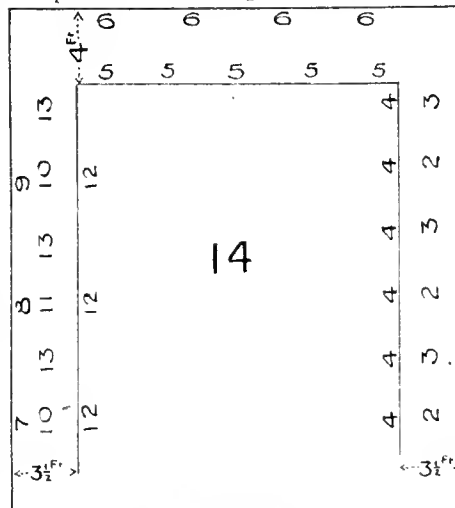
yard that gets lots of sun and has fairly good loam. After your beds are finished cover with a top dressing of decayed manure and dig this into the earth after the frost is out of the ground in the early spring.

Floral Notes

I have a seedling Pelargonium, leaves very round, and young shoots branch out from stem. It is a year old, but has not yet flowered. I would like to know if any subscriber has one like it, or anything on the market similar to it.—Chas. Harlock, Hillside P.O., Muskoka, Ont.

The Wistaria cannot be grown out of doors successfully in Ontario outside of the Niagara District unless under special conditions, such as winter protection. Even there they are sometimes injured materially during winter.—Wm. Hunt, Guelph, Ont.

There are two points in the culture of gladioli by amateurs that should be emphasized: the season of blooming of the variety and the size and age of the corn. In European catalogues buyers are advised of the season of blooming of each variety offered, while in America little attention is given to this important piece of information.—John Cavers, Oakville, Ont.



Garden Plan B

1, Background, phlox and perennials in various colors; 2, four o'clocks; 3, stocks; 4, sweet alyssum; 5, dwarf nasturtiums; 6, sweet peas; 7, sun flowers; 8, hollyhocks; 9, golden glow; 10, salvia; 11, asters; 12, pansies; 13, sweet William; 14, vegetables.

nuals. This should be done from a month to a month and a half before bedding out time, so leave as little work as you can for the spring, when you will have your hands full of other work besides laying out the beds.

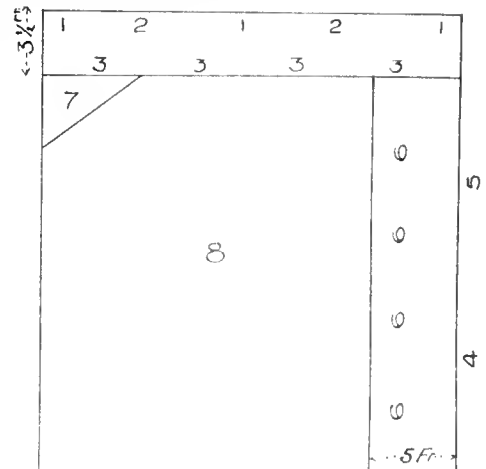
In the hope that it may help some I here give some plans for a small back garden with names of some of the plants that can be raised to advantage.

In diagram A the flowers are at the rear. Vegetables can be grown in the front of the flower bed, or it can be left for a grass lawn.

In diagram B the flower beds are at the sides and end. The centre can be used as one thinks fit.

In diagram C the flower beds are at one side, with spaces left for vegetables.

The plans are all simple and can easily be made with very little work. The seeds or plants can be got from any of the numerous seedsmen or nursery men, and can be grown in any ordinary back



Garden Plan C

1, Golden glow; 2, golden treasure; 3, nasturtium; 4, sweet peas; 5, morning glory; 6, asters; stocks, sweet william and other annuals; 7, cabbage heap, with sun flowers in front; 8, vegetables.

Mushroom Culture on a Large Scale

B. H. C. Blanchard, B.S.A., Ellershouse, N. S.

A CROP that requires years of study and experience before the grower can be assured of a regular yield is mushrooms. The culture of mushrooms is somewhat uncertain from start to finish; in spite of all precautions, the crop may fall away below expectations. A grower who has had more than ordinary success is Mr. A. Collins, mushroom expert for Church & Illsley, of Falmouth, N.S., whose methods, as related to me during July, are full of interest.

Speaking from 30 years' experience, Mr. Collins stated as his belief that where most growers fail is in the preparation of the manure. The equipment required is not expensive; any cellar will do that has a dry, hard bottom. Mushrooms require darkness but the few windows in the ordinary cellar need not be darkened. The bottom may be clay, gravel or concrete. If the clay is not dry, it is best to concrete it. In addition to two ordinary house cellars, Church & Illsley have a special mushroom house, one hundred and twenty feet long, sixteen feet wide, and four feet high to the eaves. A longer house is not advisable. It is tightly built with good lumber and shingled all over. There are several doors for handling the manure conveniently, but no windows. Steam heat is used in winter. No heat is used in the cellars. A mushroom house should be as low as possible, convenience in working being a consideration.

The manure is treated by Mr. Collins for several weeks before it is put into the cellars. Only the very best horse manure is used. This is turned every day in the open for ten days, and the long straw all taken out. It is then turned every other day for a week. After that it is piled in ridges and turned once. Three weeks in all should put the manure in good shape. When ready, a handful of the manure squeezed tightly should become a solid ball, firm to the touch.

For the winter crop the best time to prepare the manure is August, although any time between April and the last of August will do. The manure is placed right on the clay or concrete in successive layers and tramped solid till it is nine inches deep. The temperature will sometimes rise to one hundred and thirty degrees in two or three days, but when it falls to eighty-five degrees the spawn should be planted.

Mr. Collins prefers breaking the ordinary bricks of spawn into sixteen pieces. These are planted an inch below the surface of the manure, eight inches apart each way. The manure is tramped down solid and left for a week. After that a coating of rich, loamy soil is applied

two inches deep and pounded down till it is just one inch thick.

No attention need now be given to the beds for six weeks, when the mushrooms will begin to show. The first application of water should now be given and the beds thoroughly soaked. They should require no more water till the bulk of the crop is off. When the crop begins to die away another good watering will do till the crop is exhausted. A mushroom bed will usually crop from ten to sixteen weeks; twenty weeks is exceptional. Under good conditions a bed will yield from one to one and a half pounds to the square foot.

From seven to eight weeks after sowing the spawn the mushrooms will begin to lift. If sown in August they may run on till late in March. The dead

manure is splendid for compost. About fifteen two-horse loads is sufficient for twelve hundred square feet of bed. The temperature of a mushroom house to give best quality should not fall below fifty-three degrees and not rise above sixty-five.

It is possible to take off two crops of mushrooms in one year, if a new lot of manure is put in as soon as the old is taken out. The old bed can be renovated without taking out the manure by spreading one and one-half inches dry cow manure and soil on top, tramping it well and then adding one-half inch of soil. This course is advisable only when one cannot wait to properly prepare the horse manure for the coming crop. Next to preparing the manure, the watering is most important. The two applications mentioned should be sufficient; too much water will kill the spawn.

Hints to Horticultural Exhibitors

A. V. Main, Ottawa, Ont.

IN view of the rapid increase in the number of Horticultural Societies, the extension of fall fairs and the love of garden recreation in general, something timely can be penned on the exhibiting of garden produce. Competition in the garden and in the competitive hall maintains high standard of quality and promotes healthy rivalry all round.

Competition is universal. In the garden it is a continual fight between weeds and vegetables. Were it not for the weeds our gardens might not receive the necessary cultivation and we ourselves would become indolent if gardening were only a matter of sowing and reaping.

A feature noticeably lacking at recent exhibitions has been displays by our well-known seed and nursery firms. Canada's best fairs should be taken advantage of by these firms for the purpose of advertising new introductions of vegetables, fruits or flowers. The exhibitors would be recompensed by medals or certificates, and the increased business that would result from coming in contact with their customers.

UNATTRACTIVE ARRANGEMENT.

On every hand the vegetable produce is unexcelled, so the spectators inform us. By many judges, luckless competitors, professional gardeners, and those having a taste for arrangement, the conclusion reached is that the material is good, but the arrangement is most ineffective. No system is followed. This is more evident at country fairs and does not exist to such a degree at the up-to-date shows, although in the latter case the general ensemble could be improved upon also. A cabbage is placed here, a squash overlapping. Tomatoes, onions,

beets, and carrots are set down wherever most convenient to the exhibitor.

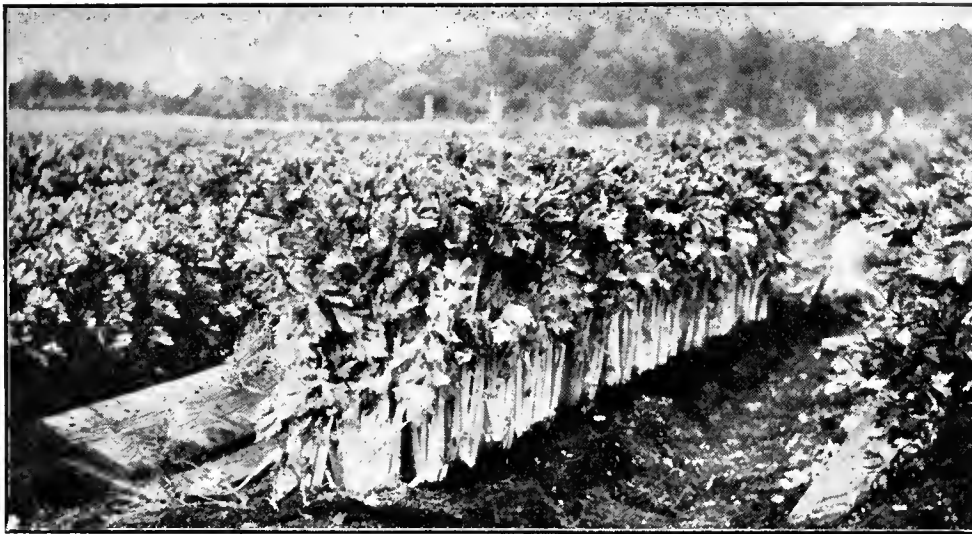
Such confusion is void of educational value or of any benefit to those interested. The exhibits should impart a lesson of improvement to the unsuccessful, so that the individual can adjust matters better in succeeding seasons. The space for each section should be set aside and distinctly labelled or else a competent man placed in charge to keep the exhibits in order.

All the entries of one class should be kept by themselves. Such a system commends itself to the judges whose duties are lightened; to the competitors, who see at a glance how they stand and profit by results for future contests, and to the spectators who can obtain a more comprehensive view of the exhibits. This is away in advance of the old method of having a first prize cabbage here and the second prize about twenty yards off.

A SLOPING EFFECT.

Collections of vegetables should command a good effect. A sloping face is necessary for the best results. Tall entries should be confined to background. There should be at least six samples of each sort with the possible exception of three hundred pound squashes or pumpkins. A few indiscriminate representatives in each class are not even worthy of name. I consider naming an important point. Neat tickets are preferable, wired several inches clear of samples.

In preparing for the exhibition, clean and trim the material well. Leave the soil in the garden; it is not required on the show board. Competitors must remember to adhere to the regulations of the prize list. If a given number of



A Crop of Celery as Grown by John Williams, Peterboro, Ont.

Mr. Williams is one of the successful market gardeners of Peterboro. Although his soil is a rich muck, he fertilizes it heavily. The celery is planted in double rows on the flat, no trench es being dug. The soil is cultivated almost daily.

specimens is mentioned neither more nor less is wanted. Fraudulent exhibiting sometimes occurs, such as showing stuff not grown by the exhibitor or displaying wrong varieties. The officers may not detect every case but the offender will suffer in the long run. With collections, the allotment to a certain space or the stipulation of a given number of varieties would be preferable to the wide range method at present in vogue.

THE JUDGING.

For the judging of the groups, cards should be used. So many points should be allowed for each vegetable, the arrangement, effect, quality and naming. This gives satisfaction all around. Secretaries should forward the judges copies of the prize list so that they may look up the regulations, for no two are framed alike.

The services of up-to-date horticulturists should be obtained, men of experience from the experimental farms, practical market growers or professional gardeners. Amateur horticulturists have often been selected. A few are proficient, others are quite incapable.

With many, size and quantity is placed before quality. Over grown beets, carrots or tomatoes are always coarse. Size with quality combined counts with celery, onions, leeks, cauliflower, parsnips, and muskmelons; it shows cultural skill. In other classes abnormally large specimens are only secondary for table or culinary purposes, in comparison with typical medium ones. A few choice specimens are worthy of more points than a bushel of the poorer kind. The production of the former requires skill; the latter can be grown with random methods. Fine blanched celery, specimen onions and tomatoes can rarely be had without judicious cultivation.

Judges are slow to withhold prizes, yet many exhibits are not worthy of the judge's attention. When competition is not keen and material poor, premiums are better withheld. It will cause the competitor to exert himself a little more although his temperature may run high at such procedure.

Celery Blanching

Our markets demand a clean, white-stalked celery. This is obtained by a process called blanching or growing the leaf stalks in darkness. This destroys the color in the stalk and prevents any more forming. It also makes the stalk crisp and tender. If earth is used a characteristic sweetness and nutty flavor is obtained.

Early celery is usually blanched with boards, paper or something of that kind. If earth is used before the cool weather of fall it is likely to cause rust or decay on the stalks, which of course destroys their value. Late celery may be blanched with boards or with earth. Sound boards ten or twelve inches wide, one inch thick, and twelve to sixteen feet long are laid on each side of the row. They may be cleated at the ends and centre to prevent splitting or warping away from the plants. Hooks are also used to keep the upper edges close to the celery stalks. Treated in this way celery will bleach in from one to three weeks, depending on weather conditions. Warm, moist weather will hasten blanching, while cool weather will retard it. As fast as the bleached celery is used the boards may be put on other plants. Building paper, or even newspapers, may be used if the season is not too wet.

Earth-blanched celery has a better flavor than board blanched. Where earth is used, draw it up about half or two-thirds of the way to the top of the plant when

both plant and soil are dry. After a few days more earth may be put around the plant, leaving from four to six inches of the top above the soil. This may be accomplished by a celery hiller or on a small scale with a hoe. It is sometimes an advantage to "handle" celery before hilling, that is to draw the stalks closely about the heart of the plant, holding them in place either by tying or with soil. From ten to eighteen days are required to bleach celery for use by this method. Celery well protected by soil will not be injured by quite severe frosts. Where celery is to be stored for winter use, it should be bleached but very little, if at all, in the field.

Soil Sterilization for Ginseng

Prof. J. E. Howitt, O.A.C., Guelph, Ont.

In my addresses I have frequently recommended the sterilization of soil with steam or formalin, but have not yet explained how the sterilization is done. The formalin method is for most growers the handiest and cheapest. This is best done in the fall of the year. Remove the roots from the beds and throw the soil up loosely. The soil should be dry when the sterilization is done. The formalin is diluted in water. If the soil is wet the solution should be stronger about one part of formalin to fifty parts of water. This solution should be applied to the soil at about the rate of one gallon to the square foot. Two men can do this work best, one man applying the solution with an ordinary sprayer or watering can, the other man spading over the soil as the solution is applied. As soon as the soil can be worked without puddling after treatment, it should be thrown up loosely to permit of the evaporation of the formaldehyde. Do not plant the bed for about ten days after the treatment and before planting is done the bed should be thoroughly spaded over several times. Where live steam can be obtained, steam sterilization is very satisfactory.

The inverted pan method is most suitable for ginseng beds. The apparatus consists of a galvanized iron pan about four by ten feet and six inches deep. This is inverted over the soil to be sterilized, the steam being emitted through a hose connected at one end of the pan. The sharp edges are forced down into the soil to prevent the steam from escaping. Fertilizers should be applied before the sterilization is done. The steam should be kept at as high a pressure as possible, eighty to one hundred pounds, and the sterilization continued from three-quarters of an hour to an hour and a half, depending upon the pressure maintained. This treatment will destroy the spores of the various fungi and the weed seeds in the soil.

The Canadian Horticulturist

(COMBINED WITH)

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.

Published by The Horticultural
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H. BRONSON COWAN Managing Director

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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee-keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

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6. Advertising Rates, \$1.40 an Inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1911. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,636	Total	150,293
Average each issue in 1907,		6,627	
" " " " 1913,		12,524	

Sworn detailed statements will be mailed upon application.

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Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,

PETERBORO, ONT.

EDITORIAL

THE EUROPEAN WAR

The human mind is incapable of grasping the horrors of the European War. All wars of ancient and modern times pale into insignificance when compared with the carnage that is taking place in Europe. Never before have the armies engaged been so enormous, the instruments of warfare used so destructive, or the world at large so affected. No wonder that Christian people everywhere are appalled at the thought that these things are possible nineteen centuries after the birth of Christ, whose command was that they should love one another.

Yet who can doubt but that this war will lift the world to higher and better levels of thinking and of living? So it has ever been. Over one hundred years ago the streets of Paris and towns and villages of France ran with blood as the people arose in their fury and with unspeakable ferocity slaughtered the ruling classes who had been oppressing them for centuries. But out of these troublous times arose the French Republic which ever since has been a haven which has been spreading democratic principles of government among the peoples of Europe. The freedom of management of their own affairs enjoyed by the people of the British Empire was obtained only as the result of bitter civil wars which in one case cost a king his head. The Civil War in the United States lasted for four years and cost scores of thousands of lives, but it put an end for ever to legalized slavery. Even the Boer War in fifteen short years has resulted in the Union of South Africa and the establishment in that now thoroughly loyal colony of conditions that apparently could not have been effected in any other way.

For years the peace of the world has been threatened by the existence among the nations of Europe of militaristic parties whose favorite motto has been "In times of peace prepare for war," and whose creed has been "God fights on the side of the biggest armies." The activities of these groups of reactionaries sowed the seeds of mistrust and national animosities until Europe became an armed camp and the people groaned under a burden of taxation that was rapidly becoming unbearable. The militaristic class of Germany has been the dominating factor in this movement. It has vaingloriously set the pace that the other nations of Europe have been forced to follow. It has arrogantly refused to listen to proposals looking for a reduction of national armaments.

Now! what was feared has taken place. This sentiment has had its way. Almost universal war has been declared. The blame, as the published correspondence clearly proves, rests squarely at the doors, first of Austria-Hungary and secondly of her ally, Germany. Both nations, under the flimsiest excuses, persistently brushed aside and ignored the almost frantic efforts of the other nations, which were persisted in to the last possible moment, to preserve the peace of Europe.

The outcome is plain. Events to date seem clearly to prove that God is fighting on the side of the Allies. This being the case, the complete overthrow of Germany and Austria-Hungary is assured. With their defeat will come the downfall of the

militaristic party in Germany. It is not too much to expect even that Germany will become a republic. Thus from the ground that is now running red blood promises to arise new conditions that will release the people of Europe from fetters that have bound them for years. Long needed reforms will thus become possible. Ultimately the peace of the world will be promoted. The price being paid is a fearful one. Let us believe that in time it will be justified.

THE EFFECT OF THE WAR

Year by year, as though by a divinely ordered plan, the nations of the earth have been becoming more and more interdependent. In spite of protective tariffs, which aim to make the nations which rely on them self-sustaining in matters of production, the countries of the world have been specializing more and more in the production of those commodities which their natural advantages have made it the most easy for them to produce.

This condition has been brought home to us by the European War. Suddenly we have been led to realize, as never before, that the rest of the world is largely dependent on Germany and others of the warring nations of Europe for its supply of certain standard fertilizers, seeds of many kinds, and other necessities, to say nothing of their being important markets for the products which other nations produce.

Fortunately we are not likely to suffer as much in Canada from a shortage in seeds and bulbs for next year's grain and garden crops as at first seemed probable. Many consignments from Europe had been made before war was declared. Holland, Denmark, Sweden, and portions of France, as well as Britain, seem likely to be able to fill most if not all the orders for seeds of all kinds and bulbs that had been sent forward from this side.

Canadian seedsmen, it is estimated, have in stock from 1913 about thirty per cent. of the requirements for the 1915 crop. In addition, North America produces an abundance of seed of cereal grains, clover and the leading grasses, as well as of many common vegetables. There may be a shortage in supplies of certain flower seeds, but the losses, if any, from this will be light. Should the war be continued for a couple of years, the effect will become more apparent; but this is an eventuality that hardly seems possible.

SHIP ONLY GOOD FRUIT WEST

Mr. F. C. Hart, Director of the Markets Branch of the Ontario Department of Agriculture, points out to Ontario fruit shippers that owing to the war situation, in catering to the western market this year they will be well advised to send only the best varieties, and the No. 1 grade. In anticipation of the market being a difficult one, the fruit sent should be only such as should be able to compete successfully with the fruit from other sections. Ontario apples find favor in the west. This in part is because a large part of the population of the west formerly lived in Ontario. The "fruit from home" and "Ontario flavor" has found, therefore, a ready sale in the past when it has been put up in an attractive manner.

The known varieties of Ontario fruit are familiar names to consumers in the west. Spys, Baldwins, and similar varieties are apples of which they have only heard, but of which they have had their share before going west, and they want more of

them. In placing these varieties on the market, however, Mr. Hart reminds us that it is not only the name that sells, but the apple itself. Even a good sample may find a poor market; a No. 2 or 3 grade shipped west will likely result in loss this year. Particular attention should, therefore, be paid to the grading at packing time and no inferior fruit allowed to go through to spoil the chances of sale. Nothing but the very best should at any time be put in boxes, but more particularly so this year.

Occasionally fault has been found with the Ontario pack in the west. It is not necessary to inquire into the justice of the criticism. It is enough to know that the criticism exists and Ontario packers should be careful not to justify it by an inferior pack in a single instance. What is true of boxes for Saskatchewan and Alberta is equally true of barrels for Manitoba. This excellent chance of putting up a good pack for the west should not be lost.

The Canadian Horticultural Association is planning to extend the scope of its work and make it more truly national in character. It has serious difficulties to surmount but a wide field of usefulness before it. Without receiving any government assistance the association has accomplished much good work in the past. This promises well for its future.

The European war promises to seriously affect the European apple market. The new conditions thus created call for the highest possible efficiency in marketing this year's crop. Some losses on this year's crop may be unpreventable, but there are prospects that by good management these may largely be avoided.

Canadian Horticultural Association Convention

For several years the annual conventions of The Canadian Horticultural Association have shown a yearly increase in the general attendance and enthusiasm. This improvement was continued at this year's convention, the seventeenth, held since the Association was organized which took place in Toronto Tuesday to Friday, August 4th to 6th. On the Friday following the conclusion of the convention the members of the Association went as the guests of the Gardeners' and Florists' Association of Toronto for a trip across Lake Ontario to Niagara Falls. A remarkable feature of the convention was the fact that out of the sixteen past-presidents of the Association, one of whom held office for two years, fourteen were present at the convention. The two absentees are both alive.

The social features included a visit on Tuesday afternoon to the green houses of Miller & Sons at Bracondale, and later on, the same afternoon a visit to the magnificent residence of Sir Henry Pellatt. On Wednesday afternoon the members were the guests of the Dale Estate of Brampton, and were taken by special train on a visit to the wonderful establishment of the Dale Estate which is the largest in Canada. The green-houses of Wm. Fendley and some of the other well-known Brampton florists were also visited. On Thursday afternoon the members were the guests of the Richmond Hill Horticultural Society where the green-houses of W. J. Lawrence, Harold Mills, J. H. Dunlop and Endeau's Nursery were inspected. The green-houses at Richmond Hill have all been erected in the past three years and include, particularly those of Mr. John H. Dunlop's, many innovations and modern improvements that were a revelation to all who were present.

The following officers were elected: President, H. B. Cowan; First Vice-President, F. W. Adams, Toronto; Second Vice-President, Jas. Fraser, Prescott; Secretary-Treasurer, Julius Luck, Montreal; Executive Committee, F. Dicks, London; Geo. Douglas, Toronto; Luke Williams, Ottawa; R. L. Dunn, St. Catharines; R. J. Eddy, Montreal; S. Jordan, Peterboro; A. Ferguson, Montreal; John Milford, Sherbrooke, Quebec, and Frank Wise, Peterboro.

BUSINESS SESSIONS

A number of extremely interesting addresses were given. Park Commissioner Chas. Chambers of Toronto, gave an illustrated lecture entitled "Park Systems." Mr. H. J. Moore, of Queen Victoria Park, Niagara Falls, Ontario, advocated the establishment of a National Plant Registry, this to be supplemented by trial grounds in which new introductions could be tested before being registered. The matter was considered to be an important one, and Mr. Jas. McKenna, of Montreal, Mr. Moore and Mr. W. T. Macoun, Dominion Horticulturist, of Ottawa, were appointed a committee to gather further information and submit it to next year's convention by which time it may be known whether or not the Association is likely to receive a government grant.

THE CONVENTION CITY

London, Ontario, was selected as the place for the holding of the next convention. Mr. A. C. Wilshire, of Montreal, spoke briefly on "Greenhouse Construction," setting forth the merits of the single against block houses. The following papers were read: "Cyclamen," by E. I. Mepsted, Ottawa; "Recent Rose Introductions," by Walter Muston, Toronto, and "New Greenhouse Plants," by E. F. Collins.

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Packing Fruit for Export

W. W. Moore, Chief, Markets Division, Department of Agriculture, Ottawa

IN this article I intend to deal with the general demands and preferences of the markets abroad to which Canadian fruit is shipped. The apple is the most important factor in our exports of fruit. It constitutes about 95 per cent of our sales abroad. I will deal first, therefore, with some features of our export trade in this fruit.

THE EXPORT APPLE TRADE

In 1884-5 Canada exported about 240,000 barrels of apples; in 1892-3 slightly over one million barrels, and in 1896-7, 1,664,470 barrels, a total not since surpassed. In 1911-12, however, when exports fell short of the above total by 305 barrels the total value was \$5,104,107, as compared with \$2,502,968 in 1896-7, or more than double the value for practically the same quantity of fruit. The crop of 1911, therefore, holds the record for value of apples exported and the enterprise of Canadian apple shippers is demonstrated by the fact that in that season shipments were made to twenty-eight different countries, of which the United Kingdom, Germany, Newfoundland, United States and South Africa were the largest customers in the order named.

KEEPING IN TOUCH

It is advisable to push the sale of Canadian apples over as wide an area as possible as there is a great advantage in having commercial connections in many different countries for a product that depends so much on the local supply in the various markets to which we export. It should be remembered that the sale of apples abroad depends not only upon the quality of the fruit, means of transportation and mutual confidence between buyer and seller, but also upon gaining the favor of the consumers, and this can be done only by giving them the opportunity to sample the fruit and thus determine their good qualities by actual test. Under these circumstances it is desirable that as many as possible of the twenty-eight markets referred to, should receive some shipments every year, so that close relations may be retained and the reputation of Canadian apples kept constantly before as many customers as possible.

COMPETITION GROWING KEENER

In the past ten years there has been practically no increase in the quantity of apples imported yearly into the United Kingdom where the main demand for Canadian apples is found. It is obvious, therefore, that this country can only secure a larger proportion of that market at the expense of our competitors. In order to achieve this result it is imperative that better fruit must be grown and greater care and skill developed in both barrel and box packing. Consumers are getting more critical every year and it is the inferior grades of apples that cause sales to drag and prices for all grades to decline. It should always be remembered by fruit growers and packers "that two good apples are worth more than two good apples with two poor ones thrown in."

DEMAND FOR BOXED APPLES

In Great Britain the demand for boxed apples is increasing in the high class trade, which is catered to almost exclusively at present by the product of the Western States which reaches the market entirely in boxes, packed in faultless style. The sizes most in demand during the greater part of the season are those packing from one hundred and thirty to two hundred apples in a box. In Liverpool, Manchester and Glasgow there is usually a good demand for well colored varieties of early apples packed in boxes. In the past these soft varieties have usually been shipped from Canada in barrels and the weight of the upper layers often

led to the bruizing of the apples below making the package "slack" and reducing the selling value. In the early part of the season the London market is generally well supplied with home-grown apples from the great apple-producing countries near by.

INFLUENCE OF THE PANAMA CANAL

Canadian apple growers should take note of the fact that the Panama Canal, now about completed, will very seriously increase the competition from growers in the western states. At present the railroad freight rate on apples in refrigerator cars from Oregon shipping points to Eastern markets is about sixty-two cents a box, but when shipped by water via the Panama Canal apples will be carried in cold storage for less than half that rate, probably twenty-five cents a box. It is expected that steamers equipped with refrigerated chambers will ply between ports on the Pacific coast and Liverpool, Hamburg and other European ports so that the rate to foreign markets will at least be cut in two. It is claimed that if the canal rates were available this season it would mean a saving in freight rates to apple growers in the Hood River section alone of at least \$240,000. In order to meet the situation Canadian apples packed in boxes both for domestic and export trade will have to be finer in quality and more scientifically packed than has been the case in the past, if remunerative prices are to be obtained.

THE EXPORT PEAR TRADE

Last season was a remarkably good one for exporters of pears. English and French crops were almost a total failure, and supplies from these sources were consequently very light. Unfortunately a considerable proportion of the Bartlett pears shipped from Canada were packed in barrels, an entirely unsuitable package for this variety. The greater weight in a barrel of pears, as compared with apples, is apt to lead to less care in handling in transit and the consequent bruizing of the fruit. Even with careful handling the heavy weight of the upper layers on the bottom ones flatten the latter and leave room for the balance of the fruit to move about in the barrel each time it is handled. Some three hundred barrels of Bartlett pears shipped by a well known Canadian apple shipper were condemned and destroyed in Liverpool last season. If these pears, which were a good quality, had been wrapped and packed in half boxes they would likely have arrived in good condition and realized a good price. It is essential that pears shipped abroad should arrive in a hard green condition so that they will stand up until they reach the ultimate consumer. Pears arriving in a ripe condition may be utterly thrown away if weather and market conditions are unfavorable. It is also necessary that pears should be properly graded and only fruit of the same size packed together.

COLD STORAGE NECESSARY

Cold storage is a very important factor in the shipment of pears, especially the Bartlett and other early varieties. Whenever possible this class of fruit should be pre-cooled at the initial point of shipment and refrigerator cars and ocean cold storage should be taken advantage of for every shipment. The difference in condition on arrival in Great Britain between pears that had been pre-cooled and shipped in iced cars and steamship cold storage and those lacking some or all of these advantages was clearly demonstrated to the writer during a visit there last autumn, as shipments from the United States received under the former conditions arrived in excellent shape, while a large proportion of the other consign-

ments were landed in a damaged condition and were often a total loss.

Some of the pears received in London from Canada last season had only the top layer in each box wrapped. This is a very foolish practice; either all the pears should be wrapped or none, as buyers will not pay the price of wrapped fruit for boxes which contain largely unwrapped fruit.

PEACHES FOR EXPORT

The principal market for imported peaches in Great Britain is found in London. There is a demand there for a limited quantity at fair prices. Experience has shown that Canadian peaches can be landed in first-class condition provided proper care is exercised in picking and preparing them for shipment. Each peach must be wrapped and single layer cases with wood wool lining should be used. If pre-cooling before shipment is possible the peaches may be allowed to get reasonably mature before picking and thus improve their quality and appearance.

COST OF PACKAGE AND MATERIAL

Packing peaches for export entails considerable expense and good prices must be obtained if the business is to be profitable. When the trial shipments of peaches to Great Britain were made by this Department in 1910 it was found that the total cost of the package and packing material was ten cents a single layer case holding about twenty Elberta peaches.

THIS SEASON'S OUTLOOK UNCERTAIN

Owing to the general European war which at the time of writing is in its initial stage, the outlook for this season's export fruit trade is very uncertain. The continental market will be lost, but thanks to the protection of the British fleet it is possible that shipping between Canada and the United Kingdom will be uninterrupted with freight and insurance rates not far from normal. There will undoubtedly be considerable unemployment in Great Britain, thereby diminishing the purchasing power of the bulk of the people, and fruit being more or less of a luxury will be one of the food products most quickly affected. The duration of the titanic struggle will be the all-important factor, but this we cannot foresee.

Fruit Crop Prospects

There is very little change in prospects for the apple crop since last month. The average over the whole Dominion for early apples is 79 per cent, for all fall apples 76 per cent, and for winter apples 75 per cent, giving a total crop of 77 per cent. This is an increase of 28 per cent over the total crop of 1913.

The apple crop promises to be generally clean, a feature of great importance. This has been largely brought about by more effective spraying, assisted by dry weather. There are some sections of Canada where apple scab is usually prevalent, and even in these the situation is not at all unfavorable.

With the exception of the southern portions of Ontario, fall varieties promise a slightly lower yield than the earlier sorts, though this difference is not greatly marked in any particular district. Orchards under cultivation are in better condition than those which have not been so treated. This feature emphasizes the importance, in a season such as the present, of the conservation of moisture.

PEARS

There has been no decided change in the pear crop. Prospects in southern Ontario point to a yield a shade above medium. Bartletts are generally light with Duchess and Winter Nelis more productive than

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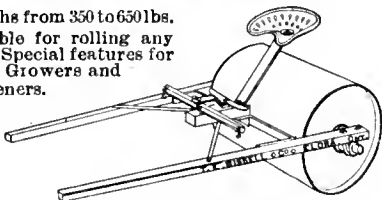
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other varieties. In all other sections of Ontario the crop is practically a failure, with a few scattered exceptions in the inland counties north of Lake Erie. Nova Scotia and British Columbia both report a crop between medium and full, although considerable damage has been done to the latter province by Fire Blight.

PEACHES

In spite of the fact that the peach crop in the Niagara district is practically a failure, some Triumphs are upon the market, and at least in one instance these were purchased at 55 cents for six quart baskets f.o.b. shipping point and retailed in Ottawa at 75 cents. At figures such as these, the few growers who are fortunate enough to have hardy cling-stone varieties in their orchards, will be in an enviable position, at least in the eyes of their less fortunate neighbors. The prices should also be good for the peaches of Essex, Kent and Lambton counties. In British Columbia the apricot season was ended by the first of August, which is two weeks earlier than in the ordinary year. All peaches are reported a good crop.

TOMATOES

The long spell of hot, dry weather seriously affected the tomato crop in all parts of Ontario, and the chances now are that in spite of the very heavy acreage the total crop will not greatly exceed that of previous years. The crop in British Columbia is in practically the same condition as in Ontario, except, of course, in irrigated sections where the effects of drouth have been largely prevented. In other sections, however, the lack of rain has resulted in a falling off



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Darwin Tulips, Single Early Tulips, Hyacinths, Chinese Lilies, Narcissus, Daffodils, Paper Whites, Snowdrops, Crocus, Spanish Iris

Write for our Price List

GEO. KEITH & SONS

Seed Merchants since 1866

124 King St. East - TORONTO

Cold Storage Fruit Warehouse

Finest Apple Rooms in the Dominion for Export and Local Trade.

Special Rooms for All Kinds of Perishable Goods.

THE CANADA COLD STORAGE CO.

Limited

53 William St., MONTREAL, Que.

Douglas Gardens

OAKVILLE, ONT.

The stagnation in many lines of business caused by the European War furnishes an opportunity for many business men to make improvements in their gardens and home grounds. No line of plants will give such large results for the outlay as Herbaceous Perennials. Of these the Paeony, Iris, Delphinium, Phlox, Helenium and Hardy Chrysanthemum are the best six. We have fine stocks of these and of many others, grown in our own grounds—all described in our Fall Planting List, just issued, which is sent free on request.

We offer 50 varieties of Paeonies at from 30c to \$2.50 each; 30 vars. of Irises at from 15c to \$1.00 each; 5 vars. of Phloxes at 15-20c each; 5 vars. of Heleniums at 15-20c each; Gold Medal Hybrid Delphiniums at 20c each; 10 for \$1.50; 5 vars. of Hemerocallis at 15-20c each; 6 vars. Astilbe and Spirea at 15-35c each; 4 vars. of Campanulas at 20c each; 5 vars. of Heuchera at 20c each, Dicentra Spectabilis at 20c each; 3 vars. Shasta Daisies at 25c each, 10 for \$2.00, and many others.

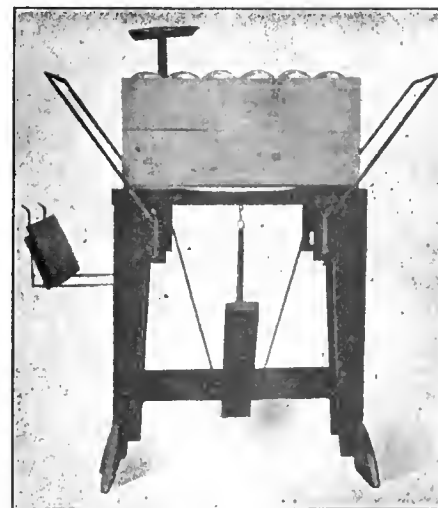
At the hour of writing, it is doubtful whether the usual importations of Daffodils and Tulips can be received because of the war. The best substitute for these is Irises, of which we have a good stock. These should be planted at the earliest day possible in September.

Cash with order, including postage, as per schedule, please.

JOHN CAVERS

Quick and Easy

That is the way the DAISY APPLE BOX PRESS works. A simple pressure of the foot brings the arms up over the ends of the box, automatically draws them down and holds them in place while being nailed. The fastest and only automatic press on the market.



Pat. No. 104,535

If you pack apples in boxes, this machine will be a great convenience to you and will save you time and money. Write for prices to

J. J. ROBLIN & SON
Manufacturers Brighton, Ontario

The Pick of the Bulb World

All our bulbs are grown for us especially and are personally selected by the James Carter & Co. experts.

Thorough tests, both before exportation, and at the Carter establishment at Raynes Park, London, assure sound, healthy bulbs of the very highest quality. Our Tulips and Narcissus are exceptionally hardy and well suited to the Canadian climate.

Carter's Bulbs

are unequalled for bowl or bed culture.

The Carter catalogue and handbook—"Bulbs"—illustrates and describes the choicest varieties of Tulips, Narcissus, Daffodils, Crocus, and many others. It lists all well-known favorites and many exclusive kinds not to be had elsewhere. Complimentary copy on request. Write for it to-day.

CARTERS TESTED SEEDS INC.

133A King St. East : Toronto



in prospects, and much of the fruit produced, while abundant in quality, will be of small size.

GRAPES

Reports still point to an almost exceptionally heavy crop in the Niagara peninsula. The average for the district is 85 per cent and from practically no sections have any adverse reports been received. The red varieties are not so promising as some of the others.

FOREIGN CONDITIONS

United States.—A telegram from Portland, Oregon, dated August 10, estimates the apple production in the four northwestern states of Washington, Oregon, Idaho and Montana at 15,000 cars. Of these, Yakima Valley will produce 5,000 cars; Hood River 1,500, Wenatchee Valley 4,500 and Western Oregon 900.

The crop in New York state promises to be 12 to 15 per cent greater than the crop of 1912 and to double that of last year. In the large producing sections of the states the increase is great. Baldwins are particularly heavy, some growers reporting the crop as the best since 1896. Greenings are light to fair, Kings and Twenty Ounce good. The peach crop is a total failure, and plums are light.

London, England.—Weather conditions favorable for fruit. Apple crop larger than previous estimates. Owing to war and high price of sugar, fruit growers now receiving very poor prices.—Dominion Fruit Crop Report.

Costs less to keep
in repair than
any other
Elevator Digger



Adjustable in every
necessary way and
easily controlled.

Digging Potatoes

with an

IRON AGE

Saves time, saves labor, gets all of the potatoes, helps you get to an early market when the price is right. Digs, separates thoroughly, drops the potatoes where you want them, and in most cases fairly well sorted. The question is: Can you afford to be without a digger?

Four styles from which to choose the one that suits your conditions best. You pay for and your horses draw only what you need.

We have been making Diggers 10 years and know what to build for this work. Our Booklet "D" tells the whole story in an understandable way. May we send it?

The Bateman-Wilkinson Co., Limited
460 Symington Ave. - Toronto, Ont.

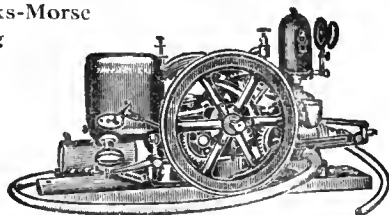
Items of Interest

A meeting of the Ontario Ginseng Growers' Association will be held in the Temperance Hall, 1087 Queen St. West, Toronto, at half-past-one in the afternoon of September 9th.

At the annual meeting held August 21st, in Morrisburg Ont., of the St. Lawrence Valley Fruit Growers' Association W. G. Robertson of Matilda township was elected president; L. E. Parisien of Cornwall, vice-president; E. P. Bradt, B.S.A., of Morrisburg, secretary-treasurer. Because of the European war Montreal buyers have offered prices below the normal. It was resolved to again make an exhibit at the annual flower and fruit show in Toronto, and to agitate for the holding of a similar show in Ottawa. A much larger exhibit will be sent to Toronto than in former years, probably three hundred boxes of McIntosh Reds. The selling of apples cooperatively, with a central packing place, which would insure uniformity, was favored by all, though the meeting concluded that until the war ended the making of definite plans was not advisable.

Canada's recently appointed Dominion Fruit Commissioner, Mr. D. Johnson, visited Nova Scotia during the latter part of June and early July, in order to acquaint himself fully with fruit conditions in that province. In company with leading fruit growers and government officials he visited many of the largest orchards and also attended the annual meeting of the United Fruit Companies of Nova Scotia Ltd. Everywhere he went he made a most favorable impression. At the closing session of the annual meeting of the fruit growers' company, the following resolution was passed: "Resolved,—That that United Fruit Companies of Nova Scotia, Limited, express their appreciation of the visit of Daniel Johnson, the fruit commissioner of Canada. From him we have received inspiration in our work and advice that will be most helpful. We congratulate the government of Canada on their having obtained for the important position of fruit commissioner a man so eminently fitted for the office."

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Outfit



The most satisfactory
system for every spraying
purpose.

It offers you the most convenient and economical means of destroying insects, curing or preventing plant and tree diseases.

Made in many sizes—both hand and engine operated.

Send for free catalogue. It tells you what and when to spray, the best compounds to use, how to prepare them, etc.

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The Canadian Fairbanks - Morse Co., Limited

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Edmonton
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Canadian Departmental House for Mechanical Goods

QUEENS OF QUALITY

3-band leather color. Unt., 60c. each, \$7.00 per doz.
Sel. Unt., 75c. each \$8.00 per doz. Circular free.
J. I. BANKS - LIBERTY, TENN.

IF YOU WANT SOMETHING BETTER

than what you already have in the Queens and Bee line, try one of the Atchley Dollar Queens. I make a specialty of Dollar Queens, or \$10.00 per doz. Good, strong two-frame nuclei with Untested Queen, \$2.50 each; three-frame, \$3.00. Safe arrival and satisfaction guaranteed.

WM. ATCHLEY, BEEVILLE, BEE COUNTY, TEXAS

REQUEEN YOUR BEES

this fall with young queens bred from Doolittle's best breeders. We have 500 or more choice untested queens on hand at all times. Prices, 60c each, \$6.00 per dozen. Delivery guaranteed. Nuclei, 2 frame \$1.50, 3 frame \$2.25. We have apiary of hundred colonies for sale at bargain, on easy terms of payment. Particulars on request
SPENCER APIARIES CO. - NORDHOFF, CAL., U. S. A.

THE BEEKEEPERS' REVIEW CLUBBING LIST

The Review and Gleanings one year, \$1.50.
The Review and American Bee Journal one year, \$1.50.

All three for one year only \$2.00
Canadian Subscribers add for postage as follows: Gleanings, 30c.; A. B. J., 10c.

Address
THE BEEKEEPERS' REVIEW, North Star, Mich.

FOR SALE

Hillcrest Fruit Farm of 48½ acres, the property of the late H. T. Stevens. This property is situated 1½ miles from the village of Norwich, Oxford County. 14 acres planted with apple, pear, plum and cherry trees and most all kinds of small fruit in bearing condition. Frame house and barns and 2 greenhouses on premises. For particulars apply to the undersigned Executors

**ANDREW COHOE, R. R. No. 1, BURGESSVILLE
GEO. CRAIK, R. R. No. 2, MOSLEY, ONT.**

QUEENS AND BEES

We can supply choice leather colored Italian Queens promptly at the following prices:

	1	6	12
Untested	\$1.00	\$5.50	\$10.50
Tested	1.50	8.50	16.00
Select tested	2.00	11.25	22.50

For prices on larger quantities please write us.

We offer bees in pound packages from the same stock as above as follows after July 1st:

1 lb.	2 lb.	3 lb.
-------	-------	-------

\$1.50	\$2.50	\$3.50
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These prices do not include a queen. Add price of queen you may select to price of package when ordering. Safe delivery guaranteed. Full directions for handling sent with each shipment.

A full stock of bee-keepers' supplies always on hand for prompt shipment. Catalogue on request.

We Want More Beeswax.

F. W. JONES - BEDFORD, QUE

CARNIOLAN QUEENS

After July 1st

Untested {	1	6	12
	75c.	\$4.25	\$8.00

Address

**WM. KERNAN, DUSHORE, PA., U. S. A.
R.F.D. No. 2**

WHEN YOU NEED QUEENS

We will be pleased to fill your order. Our business of rearing Queens was established in 1884. We know what it means to have a good strain of Bees and Queens that stand second to none.

Three-banded Italians only bred for business and free from disease. Tested Queens, \$1 each. Untested, 75c.; \$7 per dozen. Send for Price List.
J. W. K. SHAW & CO., LOREAUVILLE, LA., U. S. A.

SELECT ITALIAN QUEENS

We will both be disappointed if you do not order a half dozen of our select untested Italian Queens at six for \$4.00, 1 lb. Bees with Queens, \$2.50. We have a number of satisfied Canadian customers. We want you too. Circular Free, write

J. B. HOLLOPETER

BOX 56 - - - - - PENTZ, Pa., U. S. A.

INCREASE YOUR HONEY CROP

by introducing some of Leininger's strain of Italians. Have been a breeder for 25 years. No better bees in America. Untested one \$1.00, six \$5.00. Tested one \$1.25, six \$6.00. Breeders, \$10.00 each. During August and September we will sell tested Queens, one year old, at 80c each. Will guarantee every queen.

FRED LEININGER & SON - DELPHOS, OHIO, U. S. A.

QUEENS

by return mail or your money back. Guaranteed purely mated. J. E. Hand strain of three-banded Italians. Write for price list and free booklet, "How to Transfer, Get Honey and Increase."

J. M. GINZERRICH, ARTHUR, ILL., U. S. A.

BEES FOR SALE

Having to reduce my stock of bees I offer for sale a few hives. All bees on good straight worker combs in factory-made frames, 8 frames to the hive.

CHAS. BLAKE, SNOW ROAD STATION, ONT. (C.P.R.)

MILLER'S STRAIN ITALIAN QUEENS

By return mail or money refunded, bred from the best red clover strains in United States, in full colonies; from my Superior Breeders, northern bred, for business, long-tongued, leather color or three-banded, gentle, winter well, hustlers. Not inclined to swarm, roll honey in. 1 untested, 75c.; 6, \$4.00; 12, \$7.50; 1 sel, untested, \$1.00; 6, \$5.00; 12, \$9.00. A specialist of 17 years' experience. Safe arrival and satisfaction guaranteed.

I. F. MILLER, BROOKVILLE, PA., U. S. A.

**BUY CARNIOLANS IN CARNIOLA**

Pure Carniolan Alpine Bees
Write in English for Booklet and Price List. Awarded 60 Honors.

Johann Strgar, - Wittnachs

P. O. Wocheiner Feitritz
Upper-Carniola (Krain), Austria

QUEENS QUEENS

Three Banded and Golden Italians. Vigorous queens, from clean, healthy colonies. Safe delivery at your Post Office guaranteed. See our catalogue.

THE HAM & NOTT CO., Ltd.

BRANTFORD - - - - - ONT.

Bees and Bee Supplies

Roots, Dadants, Ham & Nott's goods.
Honey, Wax, Poultry Supplies, Seeds, etc.

Write for a Catalogue

THE CHAS. E. HOPPER COMPANY
185 Wright Avenue, Toronto, Ont.

TOAK QUEENS

AFTER JULY 1st

Tested Strait	75c. each
Untested	50c. each
Bees per pound	\$1.00
Nuclei per frame	\$1.00 each

I. N. BANKSTON

BUFFALO - - - - - TEXAS, U. S. A.

Famous Queens Direct from Italy

Bees more beautiful, more gentle, more industrious, the best honey gatherers.
PRIZES—VI. Swiss Agricultural Exposition, Berne, 1895.

Swiss National Exposition.

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Beekeeping Exhibition, Liege.

Belgium, 1896

Beekeeping Exhibition, Frank-

fort. O. M. (Germany), 1907.

Universal Exposition, St. Louis,

Mo., U. S. A., 1904.

The highest award.

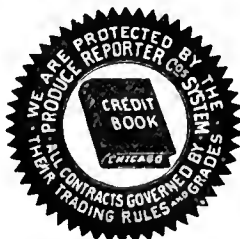
Extra. Breeding Queens, \$3.00; Selected, \$2.00; Fertilized, \$1.50. Lower prices per dozen or more Queens. Safe arrival guaranteed.

ANTHONY BIAGGI

PEDEVILLA, NEAR BELLINZONA ITALIAN SWITZERLAND

This country, politically, Switzerland Republic, lies geographically in Italy and possesses the best kind of Bees known.

Mention in writing—The Canadian Horticulturist and Beekeeper



Branch Warehouses:
Sudbury, North Bay,
Cobalt, Cochrane and
Porcupine

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OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

H. PETERS

88 Front St. East, Toronto

References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.



Bissell Steel Stone Boat



Used extensively by gardeners and fruit growers.

Steel Railing around edges. Steel Runners. Bevel Corners.

1 ft. by 2, 24 or 3 ft. Write Dept. N. for Folder and Prices

T. E. BISSELL CO., LTD., ELORA, ONT.

TRADE MARK
Wilkinson Climax B
REGISTERED

Ensilage and Straw Cutter

Our "B" machine, built especially for the farmer. A combination machine—it will cut and deliver green corn into the highest silo or dry straw or hay into the mow. 12-inch throat, rolls raise 6 inches and set close to knives—solid, compact cutting surface. Can change cut without stopping. Can be reversed instantly. Direct pneumatic delivery. Knife wheel carries fans. No lodging, everything cut, wheel always in balance. Steel fan case.

Made in two styles—mounted or unmounted. We also make larger type machine for custom work. Ask your dealer about this well-known machine and write us for new catalog showing all styles.

THE BATEMAN-WILKINSON CO., LIMITED
468 Campbell Ave.
Toronto, Canada



Mr. Fruit Grower

Each year more and more of the celebrated "Friend" hand and power Sprayers are to be found in Canada; THERE'S A REASON—Let us tell you.



"FRIEND" QUEEN

A popular model on which sales have doubled. We have many others.

"FRIEND" MFG. CO.
GASPORT, N.Y.

Common Mistakes in Barrel Packing of Apples

P. J. Carey, Chief Fruit Inspector, Ontario

FOR a half-century the barrel has been the package generally used for the shipment of Canadian apples for export. It is only within recent years that the box has made its appearance, and while the latter has come to stay as far as our domestic trade is concerned, the same cannot be said of the export trade. The reasons for this are plain. With the exception of some portions of the north of England, where our apples are purchased by the package by the more wealthy consumers, the great bulk of our fruit is sold by the pound.

This being the case it matters little, therefore, what trouble we may take in putting on the European market neat and attractive packages with a view of impressing the consumers, when such packages scarcely ever reach the public, but have their contents broken up and sold in small quantities. Generally speaking, it would seem then that the apple package for export for some time to come is nothing more than a carrier. I am ready to admit, therefore, that the barrel is the cheaper package and likely to hold its place for the greater portion of the export shipments, notwithstanding the fact that the number of boxes exported is increasing yearly. This being true, then, perhaps the last word has not been said on the proper methods of barreling apples. It is my intention to point out some of the mistakes commonly made by the great bulk of apple handlers.

FACING.

Taking the operations in order, I would like to say a few words about the facing of the barrel. The Inspection and Sales Act requires that the face of a package shall fairly represent the contents. Of course, this means as to quality of fruit. There is no law to prevent a packer from making the face of his package look attractive by removing the stems from the apples and using fruits of a uniform size; or say a half-way between the maximum and minimum of the lot being packed as to size and color. There is easily twenty-five cents a barrel in value in the same lot of apples between a slovenly faced barrel and one properly faced.

PROPER FULLNESS.

In the particular of proper fullness, packers have made the greatest mistake in the past. The large number of slacks reported from the Old Country and the low prices returned for such alarmed the apple handlers, and orders were given to all packers that the trouble of "slacks" had to be met. Quite naturally the first thought was to fill to overflowing, and as a result the fruit was heaped on the end of the barrel before the head was being placed on. Strangely enough it took almost a quarter of a century to convince the apple growers that this was a faulty method and that thousands of barrels of the worst kind of "slacks" was the result of this style of packing. Apples crushed into a barrel with skin broken, followed, in many cases, by heating while in transit, spells failure, and the account sales and check in such cases are heartbreaking to the shipper.

The word "racking" as it applies to barrel-packing was coined by the apple packer and is commonly understood to mean the shaking and settling down of the apples in the barrel. So important is its application in the operation of barrel packing that the difference between it being properly and improperly done is the difference between success and failure in the packing of apples.

The process of racking is well understood by all apple men, and it is not my purpose to go into detail; only to emphasize the importance of that particular part of the work.

TAILING.

Perhaps fifty per cent. of the barrel packers still practice what may be termed jumble tailing. This is where an attempt is made to roughly and hurriedly level the top surface before placing the head. This may be put down as one of the common mistakes in barrel packing. When the head is put on, the high apples take the whole pressure first and are crushed or broken before the head is in place. What may be called proper tailing is when the apples are placed in solidly and evenly, so that each one will take its share of the pressure. Where this is done the operator can more easily detect if he is filling too high, and if the rest of the operation has been properly done the surface apples will not show more than a slight flattening and the fruit below not damaged. It has been admitted that up till a few years ago seventy-five per cent. of the export apples have been overpressed. Experiments have shown that where proper racking and tailing has been done it is not necessary that apples should project above the end of staves, and considerably lower for domestic markets.

PRE COOLING.

This introduces another phase of the operation that is a big factor in successful apple handling. The packing of summer or fall apples in an airtight barrel when the temperature is high can certainly be classed as one of the mistakes. Experiments this season have shown that small fruits pre-cooled sold for double the price of the same class of fruits shipped in the ordinary way. The same difference has often been shown between apples that have been heated in barrels and the same class of fruit that had arrived in a sound condition. Where pre-cooling cannot be put in practice it is a wise plan when the weather is warm to pick apples from the trees the day before packing. Orchard boxes for this purpose are used to good advantage in the Annapolis Valley, and Ontario handlers and fruit growers' associations would do well to put this into practice where possible.

As the barrel is still to be the package for the shipment of a large proportion of export apples as well as for a proportion of the domestic supply, surely it is worth while for those engaged in the trade to make a study of the very latest methods in order to secure for all concerned the best results.

The United Fruit Companies of Nova Scotia, Ltd., last year paid salaries amounting to \$8,858.00. The general manager received \$2,500, the secretary and the combined organizer and inspector \$1,200 each; the European representative, \$1,111; the Halifax representative, \$1,000; and office help \$1,847. These officials incurred expenses in the course of their work amounting to \$1,963.

Mr. J. L. Hilborn, who at one time conducted the Fruit Experiment Station at Leamington, Ont., for the Ontario Department of Agriculture, has recently been appointed by the British Columbia Department of Agriculture, to take charge of an Experimental Station for small fruits and vegetables that is to be opened by the Provincial Government at Summerland, B.C.

ANNOUNCEMENT



WE ARE PLEASED to announce to readers of The Canadian Horticulturist the incorporation of a Canadian greenhouse construction firm, under an Ontario charter called The Glass Garden Builders Ltd., and financed entirely by Canadian capital.. All the executive officers of the Company are men of repute in business and financial circles. The President is W. J. Keens, a prominent business man of Toronto; the Vice-President, Dr. J. M. Baldwin, at one time Vice-President of the Toronto Horticultural Society; the Secretary-Treasurer, C. M. Baldwin, for some years an officer of the Imperial Bank of Canada, and later connected with Real Estate Companies of Toronto.

The Company is most fortunate in having the services of Isaac Cassidy, formerly Secretary of the Lord & Burnham Co., Limited, of Canada, who has been in the greenhouse building business for about twenty years. He will devote his entire time to the activities of the Company.

R. Derbyshire, formerly Canadian Manager of The Parkes Construction Company, has also consented to give his entire services to the Company. He has been in the business for the past ten years and is well acquainted with the Canadian trade.

The policy of the Company is to build all types of commercial and private greenhouses, including all kinds of equipment. As an evidence of progressiveness on the part of the new firm two new houses are already under way for J. H. Dunlop of Richmond Hill. One of these, 61 by 400 feet, is being built of the flat rafter full iron frame type. The other is a pipe frame house, 24 by 236 feet. Several private houses are also being erected in the City of Toronto.

We would be pleased to submit plans and estimates on any work in this line. We know that our figures will interest you as all parts are manufactured in Canada.

GLASS GARDEN BUILDERS

43 SCOTT ST., TORONTO, ONT.

LIMITED

FACTORY CLEARANCE SALE

ROOFING

98c

Per Roll
108 Square Feet
Regular \$2.00
Quality.

ASPHALT FELT ROOFING

100 per cent. Saturation
Contains no Tar or Paper

Lowest price for Government Standard Roofing ever offered in Canada. Sale necessitated by business conditions.

Send for Free Sample

THE HALLIDAY COMPANY, LTD.
Formerly Stanley Mills & Co.
HAMILTON CANADA

Kelly's TREES



**True to Name
—Free From
Disease**

Mr. Fruit Grower, you are looking for the best Apple, Pear, Peach, Plum, Cherry and Quince Trees you can buy.

Kelly Trees are sold at Growers' Prices—Shipped direct from our own nurseries in Dansville and guaranteed sturdy, free from disease and True to Name.

For 28 years we have had the name of knowing how to grow trees right. From seedling to freight car we watch our own trees personally and know we are shipping just what you order. We have an up-to-date nursery plant and can ship all orders promptly, as well as grow and ship at a low cost. We give you every advantage on price. Plant apples this fall.

Write for our catalogue TO-DAY, and get our prices.

KELLY BROS. Wholesale Nurseries
216 Main Street, **DANSVILLE, N.Y.**

You'll never regret planting Kelly Trees.

The Effect of the War on Fruit Prices

Fruit growers everywhere are wondering what effect the war will have on fruit prices. The following views on this point, of well known authorities, have been obtained by The Canadian Horticulturist:

P. W. Hodgetts, Secretary Ontario Fruit Growers' Association, Toronto, Ont.: "Without doubt the European war will lower the prices of our apples and we must be prepared to accept just enough to make living wages and fair returns on our investments, perhaps less. The crop over the entire continent is good and prices would have been lower than last year if the war had not occurred. With millions of people affected by the shutting down of factories, absence of soldiers and breadwinners at the front in all large countries except the United States, disturbed trade conditions, both here and abroad, the outlook is far from favorable. About three million barrels of our apples, besides millions of pounds of dried apples are sent yearly to Germany, Great Britain, Denmark, France, Holland and Belgium. The greater part of the trade will be lost, and the fruit must be consumed at home, adding a large volume to that usually marketed here. The only policy seems to be to sell as much as possible this fall at lower prices, then prepare to pack and store the balance awaiting more favorable conditions of trade later in the year. By all means, pick and pack only the best grades this year."

Senator E. D. Smith, Winona, Ont.: "I feel that the effect of the war will be very injurious on the prices of Canadian fruits. Fruit is more or less of a luxury and in times of financial stress people are sure to cut off luxuries first. Furthermore, the shipping of apples to the Old Country will be under less favorable conditions than usual, not only as to freight rates and insurance, but the consumptive power of the British people will be impaired by the war. The two kinds of fruit which I look to be affected seriously will be apples and grapes. We have no peaches of any consequence in the country to be affected. Our plum and pear crops are comparatively light, and will be sold at reasonable prices, though not nearly so high as they would bring under normal conditions."

A Prominent Government Official: "I hesitate to venture an opinion as to the effect the present European war will have on the demand and prices for Canadian apples and Canadian fruit generally, because there are many uncertain factors in the situation which may change rapidly in the course of a week or two. With shipping, freight rates and marine insurance rates in a state of flux and the exchange market demoralized it will likely be those who know the least about the actual situation who will be most ready at this time to offer a hard and fast prediction. In Great Britain the question of unemployment will have an important bearing on the demand for Canadian fruit. A great many large manufacturing industries in the Old Country, which depend absolutely on the export trade, will be closed for an indefinite period and the purchasing power of a large section of the public will therefore be considerably diminished. In another week or two it is probable that the question of uninterrupted shipping, freight rates and the financing of export shipments will be better determined and that a forecast can then be made with some degree of confidence."

Dominion Fruit Division: In its August report this division says: "With European countries in their present unsettled state, it would be imprudent to give any but the most indefinite prediction until some more
(Continued on page 235.)

WANTED, APPLES

AND BASKET FRUITS

GEO. VIPOND & CO.

Montreal, Quebec

Branches: OTTAWA WINNIPEG REGINA

BRUCE'S REGAL FLOWERING BULBS

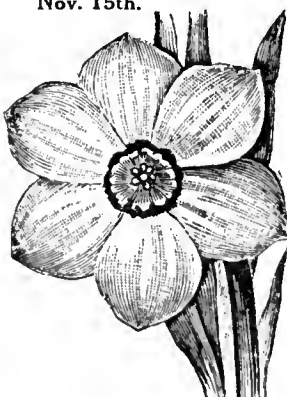
We offer a complete assortment of Bulbs for Winter Flowering in the house and Spring Flowering in the garden—Planting time Oct. 1st to Nov. 15th.

PRICES AT HAMILTON	Each	Doz.	100
Crocus, in 4 Colors - - -	\$.02	\$.15	\$.75
Freezias, Refracta Alba, large -	.03	.25	1.50
Lillies, Calla, White, large -	.20	1.80	
Lillies, Chinese Sacred, large -	.10	.80	
Hyacinths, Roman, 4 Colors -	.05	.50	3.75
Hyacinths, Dutch, 4 Colors -	.06	.55	4.00
Narcissus, Paper White Grandiflora -	.05	.30	2.00
Narcissus, Single, 6 varieties -	.04	.30	1.75
Narcissus, Double, 4 varieties -	.04	.30	2.00
Scilla Siberica - - -	.03	.25	1.50
Snowdrops, Single - - -	.02	.15	1.00
Tulips, Single, named, 6 colors -	.04	.30	1.75
Tulips, Single, choice mixed -	.03	.25	1.25
Tulips, Single, good mixed -	.03	.20	1.00
Tulips, Double, named, 6 colors -	.04	.35	2.00
Tulips, Double, choice mixed -	.04	.30	1.50
Tulips, Double, good mixed -	.03	.25	1.25

The TANGO Tulip, a beautiful Tango colored variety, with very sweet perfume, Doz. .35, 100 for \$2.50. Where Bulbs are to be mailed (parcel post) add one-fifth to amount of order for postage—where there are Express Offices, Express is cheaper than mail on all orders amounting to \$2.50 and over.

FREE—Write for our 28 page Illustrated Catalogue of Bulbs, Plants, Seeds, Poultry Supplies, Etc. This offer subject to the contingencies of war.

JOHN A. BRUCE & CO., LIMITED
SEED MERCHANTS Established 1850 HAMILTON, ONT.



SINGLE NARCISSUS

First Sales of Ontario Pre-cooled Fruit

J. A. Ruddick, Dominion Cold Storage Commissioner, Ottawa, Ont.

THE first carload of pre-cooled fruit to be shipped from the Grimsby Cold Storage, was a carload of Montmorency cherries, purchased by the Department of Agriculture from the growers at thirty-seven and a half cents per six quart basket, delivered at the cold storage. After cooling, the cherries were loaded in a refrigerator car and consigned to the Scott Fruit Company, of Winnipeg. The car left Grimsby on the evening of Thursday, July 16th and was opened in Winnipeg on Wednesday, July 22nd. The account sales were as follows:

state that the cherries were in perfect condition.

A little calculation will show that the net proceeds of this car was nearly one hundred dollars in excess of the price paid the growers. The commission of twenty per cent. for handling seems altogether too high. I do not see why a commission agent should receive nearly twice as much for disposing of a car of fruit as the railway company receives for hauling it nearly fourteen hundred miles.

A second carload of cherries, which was put through the warehouse and pre-cooled

Winnipeg, July 24, 1914

ACCOUNT SALES:

Pkgs. Rec.	Description Car 340, 232	Total
No. Sold	..... cts.	
2277 Baskets cherries, sold for	60	\$1,366.20
10 Raspberries	\$1.25	12.50
		\$1,378.70
Freight	\$148.00	
Commission	275.74	
		423.74
	Net proceeds	\$ 954.96

Other sour cherries were selling in Winnipeg on the same day (July 22nd) at 38 cents. The car was accompanied as far as Winnipeg by Mr. Edwin Smith, who is in charge at Grimsby and both his report and the report of the Scott Fruit Company

for E. J. Woolverton & Sons, was sold in Montreal on Monday, July 27th. These cherries were picked at different times during the ten days preceding shipment, and they were placed in the cooling room the day they were picked. Some of them had

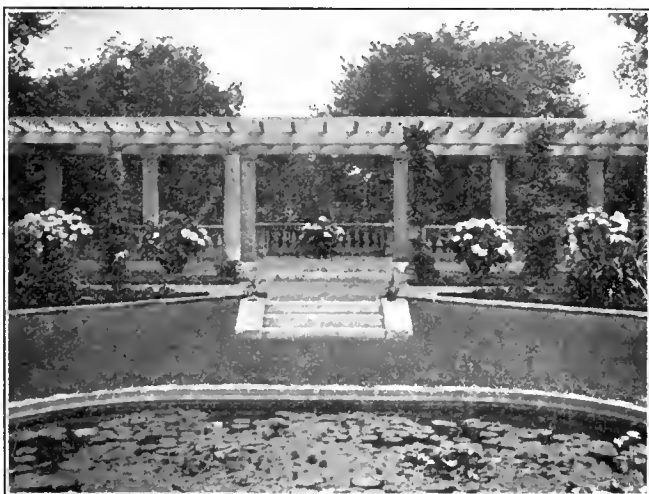
been in storage for over a week when the car was lifted on Friday, the 24th. The Montmorencys in this lot sold as high as forty-five cents and Windsors as high as seventy-five cents per 6-quart basket. The fruit inspectors report that the cherries arrived in Montreal ex-refrigerator car in good condition. Messrs. Woolverton's object in this shipment was to extend the season a week or ten days and thus avoid the glut which prevailed at the time of picking. They seem to have succeeded in their object.

Demonstration Orchards

The Fruit Branch of the Ontario Department of Agriculture has secured long term leases on three orchards in Prince Edward, Ontario and Brant Counties, respectively, which are to be used for demonstration purposes. Hitherto demonstrations have been conducted only once in the same orchards. It is realized that very little of value can be gathered from experiments conducted only once. It has been decided, therefore, that by getting orchards in several localities and treating each orchard the same for six or seven years, it will be possible to find out something of value to the apple growers of Ontario. Some orchardists have had good results with one spray material, others prefer something else. Some growers prefer Bordeaux mixture and Paris green, and say they cannot grow apples with any other mixture. The Department has not been in a position to say that they would have done better by applying some other material.

It is the intention of the Department to have about half of each orchard in sod and to compare the apples grown on it with those grown on cultivated ground. The

Have Your Grounds Been Satisfactory This Season?



It is during these months that you become best acquainted with your grounds. You realize where improvements might be made and promise yourself that next year things will be different.

Do you know that the time to make your improvements is during the next few weeks? You have this season's experience keenly in mind and know what should be done.

Have you thought of having professional advice to show you how to accomplish the most satisfactory result? Remember that when your grounds are once laid out to a well studied plan, prepared by one who has had a thorough training and wide experience in Landscape improvement, your expenditure is closed and with the growth of your shrubs and trees your place becomes more beautiful each year. We place such training at your service and for a moderate cost you may have plans prepared providing for building location, design and specifications for walks and drives, drainage, orchard plantings, gardens, in fact we handle your entire estate through to completion.

Write at once acquainting us with your problems and we will be pleased to advise you as to the best procedure.

Address

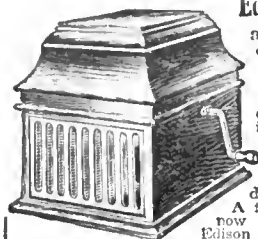
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WINONA (Landscape Department) ONTARIO

WE ARE NOW BOOKING ORDERS

For Jan. Planting, which is the best time to plant. My apple trees are grown from French Crab seed, which is the hardiest and best for Orchard Planting; also a long list of leading varieties of Fruits and Ornamentals.

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G. M. HILL, Prop.

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PAEONIES

Among the best of the newer varieties, are.

"M. Leonie Calot"
"Marguerite Gerard"
"Monsieur Jules Elli"
and
"Albert Crousse"

"Festiva Maxima" is still among the best, and we have a large stock of it.

In "Phlox" we have a number of the best and newest varieties.

"Japanese and German Iris," Perennials in variety.

Send for List

CAMPBELL BROS. - SIMCOE

orchards are divided into about four parts. In the first part, commercial lime and sulphur with arsenate of lead will be used. In the second part soluble sulphur with arsenate of lead. In the third part Bordeaux mixture and Paris green, and in the fourth part one spray of commercial sulphur, second spray of Bordeaux mixture, and a third spray of commercial sulphur.

This will be done to find out if Bordeaux mixture for a second spray will control fungus better than three sprayings with lime sulphur. One row of each part had a fourth spraying, several rows had arsenate of lead powder (instead of paste) used to see if it is as good, as it is much easier mixed. One orchard had barn manure put on part of it to see what advantage it has over commercial fertilizer.

The three demonstration orchards are as follows: One in Prince Edward County, at Wellington, the property of H. B. Collins and son, of two hundred acres. One in Ontario County at Whitby, the property of Mrs. J. J. Fothergill, containing two hundred and eleven trees. This was leased last year, and the work will be a continuation of that which was commenced then.

The third orchard is that of G. A. Parkhill, at Paris, in Brant County, containing eight acres of orchard.

Items of Interest

Prof. T. D. Jarvis, B.S.A., for some years past Associate Professor of Entomology at the Ontario Agricultural College, has resigned his position to take up active farming operations on his property in the Grimsby district. His resignation has resulted in a rearrangement of the work of the Department and general promotions. L. Caesar is promoted from the position of lecturer to that of associate professor, and A. W. Baker, who has been demonstrator, is made lecturer in fungus diseases and insects. G. J. Spencer, a graduate of the 1914 class, who has taken a special interest in entomological work, has been appointed demonstrator in succession to Mr. Baker. These appointments went into effect on the first of July.

At the annual conference of the Ministers of Agriculture in the Australian states, opened at Brisbane during the summer, it was resolved that "what is known as the Canadian standard fruit case be included in the list of Australian fruit cases already accepted by the authorities,—i.e., that fruit imported from Canada, packed in standard cases, could be sold in Australia without re-packing. Should the New South Wales Government decide to give effect to the resolution passed by the conference, in time for the Canadian export season of 1914, cabled advices will be forwarded to the Department of Trade and Commerce, Ottawa, from which Canadian shippers will be advised.

About fifty prominent fruit growers of the Grimsby District in Ontario met recently, and decided to appeal to the Railway Commission in reference to the poor service that has been given the fruit growers of that district this year by the Canadian Express Company. It is claimed that the delay in shipments through to Montreal has cost thousands of dollars. Growers who shipped to Vipond & Company, of Montreal, claim that the delay and the way the shipments were handled, resulted in a ten thousand dollar loss in two days.

Reports which are coming in from the English fruit growing districts tend to indicate that this season's apple crop will be a short one. Frost has been the main setback, but drought and insect pests have also been harmful.

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Peerless Ornamental Fencing accomplishes two great purposes. It beautifies your premises by giving them that symmetrical, pleasing, orderly appearance, and it protects them by furnishing rigid, effective resistance against marauding animals, etc.

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is made of strong, stiff, galvanized wire that will not sag. In addition to galvanizing, every strand is given a coating of zinc enamel paint, thus forming the best possible insurance against rust. Peerless ornamental fence is made in several styles. It's easy to erect and holds its shape for years.

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Black White 10c
Tan
In our new
"Easy-Opening-Box."
No trouble. No muss.

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BUFFALO, N. Y. HAMILTON, ONT.

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An ODORLESS Plant Food of Exceptional Merit

We have not the space to tell all that "Alphano Humus" will do for your Lawn and Garden, but if you are interested in Lawns, Gardens, Bowling Greens, Golf Links, Etc., we want "CONVINCEMENT BOOK" which tells you why you to send for our "Alphano Humus" is Better and Cheaper than Chemical Fertilizers and Animal Manures, and gives Useful Information for Gardeners.

It is Odorless, Sanitary and Holds 14 Times its own Weight in Moisture.

PRICE \$2.00 per 100 lbs., Freight Paid. TERMS—Cash with Order

THE GARDEN & ORCHARD SUPPLY CO., 637 King St. East HAMILTON, ONT.

SEND FOR YOUR SAMPLE AND BOOKLETS TO-DAY

The War and Fruit Prices

(Continued from page 232.)

decisive developments take place. Under these circumstances, the wisest attitude for fruit growers to adopt is to wait until the crop is ready to handle, to harvest and pack it, and if at that time the facilities for marketing abroad are inadequate, and the demand at home is not sufficiently keen to keep prices at a satisfactory level, then the only logical alternative will be to hold what

remains of the crop in storage for later distribution, and hope for the best."

Robert Thompson: Manager, St. Catharines Cold Storage and Forwarding Co., St. Catharines, Ont.: "I fear that the war situation is likely to have a depressing effect upon the sale of fruits in general in our local markets, and especially in apples for export. The higher prices likely to prevail for good products may create more of a home demand for our fruits and vegetables, especially if they are lower in price."

and we now have to pay in some cases, double this, and a partial shortage should mean a slight tendency to enhancement in prices, which we suspect will be largely modified by the present stringent conditions here, there being indications that the demand for bulbs this fall in Canada will not be so brisk as in former seasons."

W. W. Gammage, London, Ont.: "As this is a wholly new experience it is but a conjecture what or when the termination may be. So far as the bulb situation is concerned there seems to be some prospects of shipments coming through although this is as uncertain as are the dates of delivery. Azalias and other plant stocks are quite uncertain. American agents for European concerns can give no information. Their opinion is that there will be no shipments this fall. What the effect will be is problematical. It may be a blessing in disguise. The public have been educated to buy this class of stock but at a margin of profit to the grower that is not commensurate with the risk. There is little anticipation of a falling off in demand. Crops are good—and with the cutting off of supplies from Germany and other European countries, new industries will spring up that will create a wave of prosperity which will be shared in by those who are prepared."

Kenneth McDonald & Sons, Limited, Ottawa, Ont.: "It is our impression that while numerous delays in transit will surely occur, still there is a likelihood that a sufficient proportion of Dutch and French bulbs will reach this side of the water to satisfy early orders. After our first supplies are exhausted, however, we would not venture sending repeat orders depending upon the goods reaching us in time for planting. The larger portion of our French bulbs have, we understand, just reached New York, while the bulk of our Dutch grown bulbs have left Holland. Regarding seeds, just a few varieties which can

Effect of the War on the Bulb and Seed Trade

The war situation has led many to wonder what the effect is likely to be on next year's supply of bulbs and seeds, as large quantities are imported annually from Germany, France, Belgium, Denmark, Holland and England. In an effort to gain information on this point The Canadian Horticulturist recently wrote to a number of the leading seed firms and florists. Their replies indicate that there is likely to be a sufficient supply of bulbs, but that the seed trade may be considerably affected. The letters received from these firms follow:

J. A. Simmers, Limited, Toronto, Ont.—"It is too early to give an intelligent reply but we anticipate that we are going to be able to supply most of the European stock of bulbs that we usually list this fall. We consider that it is entirely too early to make an estimate of the outlook on seeds."

Steele, Briggs Seed Co., Toronto, Ont.: "We believe that we shall have sufficient bulbs this fall to cover all orders, with the exception of, possibly, *Spraea*, which, of course, matures very much later than other stocks. Owing to the war conditions we cannot give any definite information regarding them. As regards the balance of bulbs such as tulips, hyacinths, narcissus,

crocus, etc., we have already received advice that they have been shipped and should reach New York during this week. At this writing it is impossible to give any information regarding seeds, as no one can say what percentage of the German crop will be harvested and ready for the market."

Carters Tested Seeds, Inc., Toronto, Ont.: "Last week we received news from our parent house in England which indicated that we should not obtain very much of our stock of bulbs. The major portion of these, of course, come from Holland, and although this is one of the very few countries not at war, their troops are mobilized and their ports are practically closed, and all business is at a standstill. Later news has been more favorable, and it would seem that after all, shipments are being made, and present indications point to there being very little shortage of Dutch bulbs. We are not yet in a position to give any definite information regarding French bulbs. The outlook is dark regarding them, but we hope and feel that eventually matters will work out as satisfactorily with them, as with the Dutch bulbs. It must be remembered that customary freight rates across the Atlantic are suspended,

OTTAWA, CANADA

SEPTEMBER 11th to 19th

CENTRAL CANADA FAIR

Entries Close Sept. 4th, 1914

Special Excursion Rates on all Railways and Steamboats

New
\$50,000.00
Horticulture
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CANADA'S GREATEST EAST-
ERN FALL LIVE STOCK AND
POULTRY SHOW

New \$75,000.00 General
Purpose and
Machinery Hall

Two Big Main Building
2,500 EXHIBITS
OF PRIZE CATTLE
(Freight Paid upon all Live Stock Exhibits)

Daily Butter Making Demonstrations

A Mid-way of Fifty of the Finest and
Largest Shows—A World of Fun.

Grand Stand Performance
Every Afternoon and Evening

UNPRECEDENTED NIGHT FIREWORKS

Spectacular Nero and the
Burning of Rome
A presentation involving the introduction
of a fully One Thousand Persons.

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Prize Lists
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Offices: 26 Sparks Street
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JUST OUT

The "Daisy" Folding Apple-Sorting Table



This is another of the famous "Daisy" Apple Packer's Outfits which is being put on the market this season.

It is light yet strongly built to meet rough usage. It folds compactly and can be readily carried from place to place in the orchard. It is thoroughly tested for strength and efficiency.

The table frame is of oak and all metal parts are of first-class malleable, thus being interchangeable in case of breakage. The cover is of No. 10 canvas.

An Article Every Packer Should Have This Season

If interested write for circular and prices

J. J. ROBLIN & SON

Manufacturers

BRIGHTON, Ont.

Special Quotations to Cooperative Societies

Choicest Bulbs Grown in Holland

Imported for YOU

WE import the finest bulbs grown—
sound, large, and full of vitality.

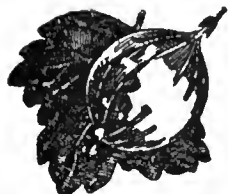
Hyacinths—Tulips—Narcissus—Crocus

The bulbs come from Holland's
quality bulb fields, and are offered at
prices usually paid for ordinary stock.
Don't buy elsewhere until you've
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Wm. RENNIE CO. Limited, TORONTO.
Also at Montreal, Winnipeg, Vancouver.

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Bulbs
to Your
Garden



SMALL FRUIT PLANTS

Gooseberries, Josselyn! Josselyn!! Red Jacket, Downing, Pearl,
Houghton, Currants, Perfection! Perfection!! Ruby, Cherry, White
Grape, Lee's Prolific, Champion, Black Naples, Black Victoria, Bo-
coop—Raspberries, Herbert! Herbert!! Herbert!!! Cuthbert, Marlboro.
Brinckle's Orange, Golden Queen, Strawberry-Raspberry. — Garden
Roots, Asparagus, Rhubarb. Write for Catalogue.

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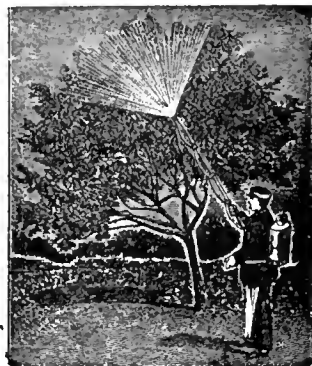
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The package that com-
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Let us quote you prices
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No charge for printing.

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WHITE DUPLEX FRUIT WRAPPER

This wrapper is a product of many years
of experimenting by the larger fruit pack-
ers. It protects, as no other wrapper can,
the individual fruit from spread of any
decay which may accidentally get into the
box. The thinner tissue wrappers cannot
give the protection from bruising, given by
the thicker substance of our Duplex.

9 x 9 10 x 10 12 x 12

Corrugated, Pulp and Lace Barrel
Heads. Corrugated, Lace and Wax
Paper for Boxes. Tissue Fruit Wraps.

Samples and prices upon request

J. H. GAIN

124 RICHMOND ST. W. - TORONTO, ONT.

be harvested early have reached us, and we
feel that many sorts which are produced in
Germany and France will not be harvested.
This will prove disastrous to the seed trade
throughout the world. Seedsmen every-
where depend largely upon France for its
supplies of such seeds as carrot, beet,
celery, mangel, etc., and upon Germany for
fine varieties of stocks, asters, pansies and
other flowers. Great Britain also produces
annually immense quantities of various
seeds and we expect they will be harvested
as usual, but it will be impossible for Brit-
ain to supply sufficient quantities to make
up for the shortages of these other coun-
tries. This will result in higher prices rul-
ing generally."

Morgan's Supply House, London, Ont.:
"We have had information which assures
us that our supply of bulbs from Holland,
with very little doubt, will be here at the
usual time. We think that in all probability
Canada will be supplied as usual, with
these goods."

Wm. Rennie Co., Limited, Toronto, Ont.:
"Owing to the European war it is possible
that certain varieties of high class flower
seeds will be somewhat difficult to obtain,
and particularly so as many of these spec-
ial seeds lose their vitality in a year, and
any stocks that may be carried over would
scarcely be saleable. This refers to certain
varieties produced in Germany and France.
As far as our own position is concerned,
we are large growers of home product
seeds, and with a fair harvest, will be in
moderately good shape for the coming sea-
son's trade. Some varieties, of course, will
be sure to be short and unobtainable from
the scenes of trouble, but from general re-
ports, we reasonably expect that there will
be sufficient seed of satisfactory varieties
of both field and garden seeds to supply
the demands for the coming season at
least."

Cold Storage For Apples

We have the only public Cold Storage Plant in Toronto that has railway facilities (both G. T. R. and C. P. R.), and you can store your apples here with the minimum of handling. By employing our facilities you are saved the expense of carting to and from cold storage plant. Every extra hand-

ling, as you know, is bad for the apples. We have a strictly modern plant. Low insurance rates. Splendid facilities for quick handling. Write for rates and reserve space early, as there is certain to be a big demand for storage space this fall.

Public Cold Storage & Warehouse Co.

Strachan Avenue, Toronto

Phone, Adelaide 600

Buy Your Ladders Now

Almost before you realize it, the busy fruit picking season will be here. Have you got the new ladders you will need? Get them **NOW** before the rush starts.

Fruit Picking Ladders

A SPECIALTY

We Make Ladders
of All Sizes
and
For ALL Purposes



Co-operative Associations!

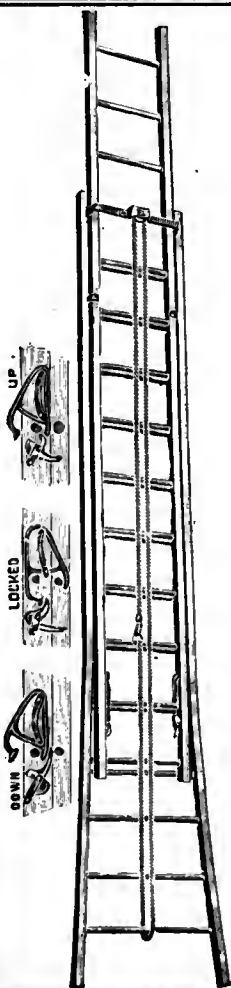
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We are prepared to quote attractive prices on large orders

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STRATFORD, ONTARIO



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Now is the time to order nursery stock for Fall planting. Our roots and seeds are grown from wild ones found in Elgin County, Ont. Prices right. If interested write for price list and other information.

W. WALKER - PORT BURWELL, ONT.

GINSENG

True Canadian Nursery Stock for Fall Planting. 1,000 Stratified Seeds \$3.00. 1,000 one year old roots \$20.00. 1,000 two year old roots \$40.00. Write us for full particulars.

I. E. YORK & CO. - WATERFORD, ONT.

Canadian Ginseng

Pure Canadian Ginseng stock for sale. Order early for October planting. Booklet free.

HURONIA GINSENG GARDEN
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LANARK GINSENG

Fortune awaits any man who will give time and attention to the growing of Ginseng. We have made a complete success of it and are ready to point the way to others. The time to prepare the ground is now, the time to plant is September and October.

Lanark Ginseng Seed is noted for its strong germinating qualities.

Lanark Ginseng Roots are sure growers and great producers.

Don't fail to make investigation of this highly profitable industry. Write to the Secretary and he will tell you all about it.

Address **C. M. FORBES**

Sec. Lanark Ginseng Garden Co.
LANARK, ONT.

FRUIT MACHINERY CO.

INGERSOLL, ONT.

Manufacturers of Fruit Sprayers

and a complete line of

Apple Evaporating Machinery

Our complete **POWER SYSTEMS** for evaporating, when installed by our experienced millwrights are the most practical, sanitary and labor saving to be found anywhere. Our prices and terms always reasonable.

Write for Illustrated Catalogue

BULBS

Now is your chance to get your Fall Bulbs
At ROCK BOTTOM PRICES

We represent in Canada one of the largest Wholesale Bulb and Plant Growers of Holland and we are going to sell at retail better Bulbs at less than you have paid before for inferior kinds.

Send us your List and we will quote you, as we have no Retail Catalog and you do not help pay for one.

NO ORDER TOO LARGE - NO ORDER TOO SMALL

Write To-day—NOW

GARDEN & ORCHARD SUPPLY CO.

637 King Street East, HAMILTON, ONT.

Phone 3514

Standard Packages for Fruit

ONE of the important subjects that will be discussed at the Dominion Fruit Conference to be held in Grimsby, Ont., early in September, will be the adoption of standard sizes for fruit packages other than the apple box although it too will probably be considered, as the Pacific Coast standard box had many admirers in British Columbia. This being the case, the following report by Dominion Trade Commissioner D. H. Ross, of Melbourne, to the Department of Trade and Commerce, Ottawa, on the Commonwealth regulations in respect to fruit, should be of interest:

Under the Commonwealth Commerce (Trade Descriptions) Act and regulations, the sizes of fruit cases, either for import or export, are not questioned. If, however, the cases are marked 'one bushel' it is stipulated that the contents shall be of a capacity equal to that of the Imperial bushel. The fruit must be correctly described and should the contents be marked on the case it is imperative that the quantity shall be correct. The Commonwealth Quarantine Act applies to all imported fruit, and prohibits the importation of fruit from certain places on account of the existence of fruit pests or diseases.

Montreal

E. H. Wartman, Fruit Inspector, Montreal

We are receiving large quantities of apples from all directions: Delaware and New York State in bushel baskets, and Ontario in barrels, boxes and eleven-quart baskets. For anything but fine quality prices are very low, about one hundred per cent less than last year at this date. This should be the year that number three apples would be better absent from our markets. There is a better use for them, apple chop or animal feed in moderation.

Although this is August 18th, about six hundred baskets of cherries arrived, and quantities of gooseberries and currants. As these fruits come in by the middle of June it has been a long season.

One of our big fruit firms here claim to have sold one hundred thousand baskets of cherries this season. I have no reason to doubt it. This would mean sixty-six cars of ordinary loading. But this is only one firm's sales. What has been the grand aggregate, who knows. I think I might safely say it has been the record crop for the last half century. This crop was predicted and never failed.

FREE LAND

FOR THE SETTLER IN

NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

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Minister of Agriculture

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ALL KINDS OF FARMS—Fruit farms a specialty
—W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS—Before buying it will pay you to consult me. I make a specialty of fruit and grain farms.—Melvin Gayman & Co., St. Catharines.

ASK DAWSON. He knows.

IF YOU WANT to sell a farm consult me.

IF YOU WANT to buy a farm consult me.

I HAVE some of the best Fruit, Stock, Grain and Dairy Farms on my list at right prices.
H. W. Dawson, Ninety Colborne St. Toronto.

GOLDEN AND THREE-BANDED ITALIAN AND Carniolan Queens, ready to ship after April 1st. Tested, \$1.00; 3 to 6, 95c each; 6 to 12 or more, 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c. Bees, per lb., \$1.50. Nuclei, per frame, \$1.50.—C. B. Bankston, Buffalo, Leon Co., Texas, U.S.A.

FOR SALE—By return mail. Root and Moor strain select tested Italian Queens, \$1.00 each, untested 75c; breeders \$2.00; grades 50c., no disease.—Wilmer Clarke, Box 200, Earlville, Mad. Co., N.Y., U.S.A.

FOR SALE—25,000 lbs. white honey. Will sell to the highest offer.—Jos. Martineau, Montclair, Que.

WANTED—Situation in greenhouse by man with some experience, reliable worker, good references, disengaged end of September.—D., Box 114, Listowel, Ont.

WANTED—Clean, bright beeswax and fancy comb honey.—R. N. Smeall, 95 4th Ave., Vancouver, Montreal, Que.

FOR SALE—30 empty hives with frames; some are Richardson, nearly new, no disease. Reason for selling—am using the Langstroth. Price for the lot, \$15.00. First money order gets them.—Lawrence Stone, Erie Beach, Ont.

FOR SALE—35 Colonies of Black Bees free from disease in up-to-date hives. Wm. Graham, Box 34, Monklands P.O., Ont.

FOR SALE—100 hives of bees. J. D. Evans, Islington, Ont.

**Apple Growers
and Evaporators**

It certainly pays to Grade Your Apples. One of our **APPLE GRADERS** in your Orchard or the **EVAPORATOR** will pay for itself the first day. Write at once for illustration and price.

The Brown Boggs Co., Ltd.
HAMILTON, ONT.

Nurseries—F. DELAUNAY

ANGERS - FRANCE

SPECIALTIES Fruit tree stocks as:

**Apple, Angers Quince,
Mazzard Cherry Mahaleb
Myrobalan, Pears, Etc. Etc.**

Forest tree seedling and transplanted. Evergreens, Ornamental Shrubs, Manetti, Multiflora
Roses in great quantities.

My General Catalogue will be sent Free on application

The Canadian Horticulturist

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OCTOBER, 1914

No. 10

Dominion Fruit Conference Resolutions

THE results of the Dominion Fruit Conference held in Grimsby, Ont., which is in the heart of the Niagara fruit district, on September 2 to 4, are largely summed up in the resolutions that were passed. Leading fruit growers were present from all the leading fruit growing provinces of Canada. Ontario, Nova Scotia, and British Columbia were particularly well represented. Delegates were present also from all the other provinces, including the three prairie provinces. The meetings were presided over by the recently appointed Dominion Fruit Commissioner, Mr. D. Johnson. Early in the proceedings the conference passed a resolution congratulating Hon. Martin Burrell upon having raised the fruit division to the status of a separate department and upon having selected Mr. Johnson to direct the activities of that department.

Elsewhere in this issue appears a general report of the proceedings of the conference. Separate reports are published also of some of the most important discussions. All the matters dealt with were fully and carefully considered. The more important resolutions adopted were as follow:

PATRIOTIC RESOLUTION

"Resolved, That in this great struggle into which Great Britain has been forced, in order to preserve her national hon-

our, the ideals of freedom and democracy, and even her existence itself, that the fruit growers of Canada contribute liberally of their substance in order to support and strengthen the Empire."

FRUIT INSPECTION

"That fruit districts in the different provinces shall be divided into sections.

"That a sufficient number of inspectors shall be appointed so that each inspector shall have a certain section under his charge so that he may be enabled to make at least weekly visits, and when instruction is required to either impart such instruction himself or, when time does not permit, that he be authorized to employ for such purpose and such time as may be required, a competent assistant.

"That in all cases when the pack is not consistent with the Fruit Marks Act, the offender, after receiving not more than one warning, or when it may be deemed advisable by the inspector to allow the offender to grade his fruit down, that on every occasion when the warning is not heeded the full penalty of the law be inflicted, and for every additional offence the fines be inflicted in accordance with the law.

"That all packers and shippers of fruit be compelled to register with the chief inspector of the division in which they reside.

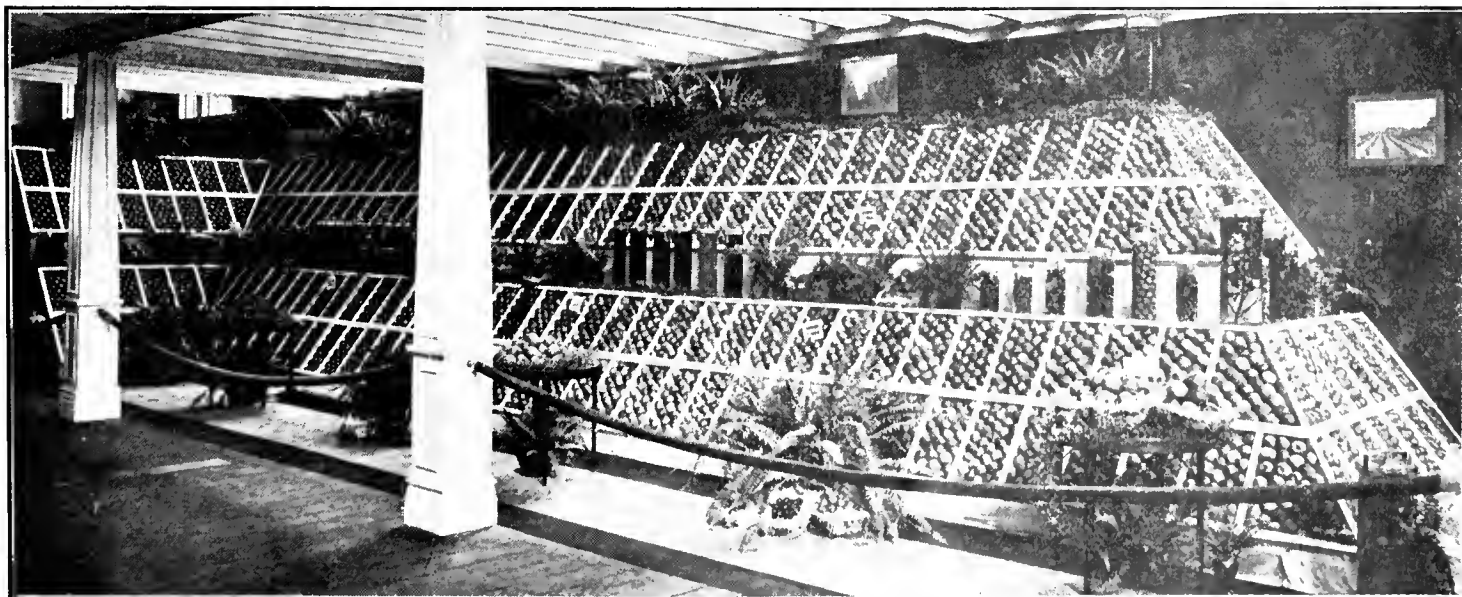
"Ever since the coming into force of

the Fruit Marks Act there has been a growing desire for some kind of report of the result of inspection which could be used as an assurance to the purchaser that the fruit in that shipment which had been inspected was up to the standard of the Fruit Marks Act. We recommend that as far as the plan can be worked out without injury to the work of inspection that such certificate of inspection be given to shippers requesting same; such certificate to be plainly stamped or printed in such a way as to indicate that it only applies to the packages inspected which may, if found desirable, be stamped 'inspected' on such parts of the packages as seem likely to best serve as an intimation that such packages have been inspected."

STANDARD PACKAGES

"Be it resolved, That a full, dry pint berry box be considered a legal measure provided that in shape and form it shall not be made to deceive the public or imitate the four-fifth quart."

"Resolved, That all forms used in the manufacture of eleven and six quart baskets shall be inspected by an officer of the Fruit Branch appointed for that purpose, and when conforming with the requirements of the Inspection and Sale Act shall be stamped with a Government stamp: And further, that the Inspection and Sales Act shall be amended to make it a legal offence to manufacture from



One of the Striking Exhibits of Fruit Made at the Canadian National Exhibition in Toronto in September, was the One Here Shown.

Included in this exhibit were peaches, apples, plums, grapes and some wonderfully well preserved specimens of fruit that were shown in glass bottles. The exhibit showed something of the fruit possibilities of Ontario. It was arranged by the Fruit Branch of the Department of Agriculture.



Mr. D. Johnson, Dominion Fruit Commissioner

Mr. Johnson presided at all the sessions of the recent Fruit Conference at Grimsby, Ont. which is fully reported in this issue.

other than stamped forms on and after January 1st, 1915."

"That we would recommend that the Dominion Fruit Commissioner make inquiries with a view to selecting a standard box for domestic use."

EXPORT PACKAGES

"Whereas, certain countries require, either by law or custom, that fruit imported be contained in packages of a fixed size, thereby preventing our exporting in packages other than those they demand: Be it therefore resolved, That we respectfully ask our Government to legalize exporting in such packages as meet the requirements of the countries with whom we wish to trade."

PACKAGES FOR HOME USE

"Resolved, that we respectfully petition our Government that such legal requirements as to size or capacity of fruit packages for Canadian fruit shall apply equally and as rigidly to fruit imported into Canada."

Note.—This resolution does not apply to boxes or barrels.

MARKING OF IMPORTED FRUIT

"Resolved, That we endorse the following resolution passed by and forwarded by the British Columbia Fruit Growers' Association as follows: Whereas, the amendments to the Inspection and Sale Act recently passed require that all shipments of imported apples should be marked in accordance with the amendments of the Inspection and Sale Act, part 9, and that other marks inconsistent with the marks specified by the Act shall be erased: And whereas the designation

'C' is allowed by the Inspectors to be retained on boxes marked by the importers 'No. 2,' such apples subsequently being sold as 'C,' which is recognized as equivalent to 'choice.' Be it therefore resolved, That we respectfully request the Honourable the Federal Minister of Agriculture to take such steps as are necessary to have this mark, and all marks on imported fruit inconsistent with the provisions of the Act, removed by the importer at point of destination."

SHOULD FILL PACKAGES

"That all fruit packages, including berry boxes, shall be well and properly filled, and in cases where there is evidence of under-filling inspectors shall have the right to weigh or measure fruit in such packages to find out if there is violation, and prosecutions shall follow at the discretion of the Department."

"That this conference respectfully asks the Government to consider the transportation conditions in Canada with a view to having the shipping difficulties with which fruit shippers have to contend removed."

CARGO INSPECTORS

"Inasmuch as a cargo inspector is appointed by the Government, and he apparently has no duties outlined and is practically without authority we would recommend that legislation be enacted giving him authority to protect the unloading, transfer, and packing of our fruit at all terminal points."

FOREIGN MARKETS

"That the Department of Agriculture should take the necessary steps to keep Canadian growers in closer touch with the importers of fruit, if necessary by the appointment of special commissioners in Great Britain, Europe, South America, Australia, and South Africa; and that the Department should set aside a sum of money for trial shipments on a commercial scale for the development of additional markets."

THE LATE ALEXANDER McNEILL

"Resolved, That this fourth Dominion Conference desires to express its appreciation of the admirable services rendered the fruit growers of Canada by the late Alexander McNeill, chief of the Fruit Division of the Dominion Department of Agriculture, whose unselfish, untiring and capable administration of his office it is desired to record.

"Among other important matters relating to the fruit industry, Mr. McNeill strongly and continuously advocated cooperation among fruit growers in Canada, and did much, both in his addresses and by his reports and bulletins, to bring before Canadians the great advantage of cooperative methods; and it is particularly desired in this resolution to emphasize this phase of his work and

the service he rendered for so many years.

"Owing to Mr. McNeill's attractive personality, his unselfishness, his geniality, and his unbounded enthusiasm for horticulture, he made many friends; and his death late last year has been a great loss to those who knew, admired and loved him; and as most of the members of this conference knew him well, it is hereby resolved that they record in the minutes of this conference the deep sense of their loss.

"It is further desired and resolved that a copy of this resolution be forwarded to Mr. McNeill's daughters, that they may know that though their father is no longer with us he is not forgotten by his many friends."

Several other somewhat formal resolutions were passed. These included one thanking those who assisted in arranging a motor trip given the delegates to St. Catharines and Niagara Falls; thanking the speakers, and thanking the Government for having arranged the conference.

The Exhibition of Fruits

**Prof. T. G. Bunting, Macdonald College, Que., President
Quebec Province Fruit Growers' Association**

The handling, packing and transportation of fruit intended for exhibition purposes should be carefully supervised. Fruits at their best are mature or nearly so and in this condition are very easily damaged, or decay may quickly set in. As little handling as possible should be given in order to avoid bruises. In picking secure plenty of the desired type of fruit which should be immediately taken to some place under cover, where a more careful selection can be made. The specimens so selected should be carefully wrapped and packed away until required for the exhibition. This will lessen the amount of decay that is apt to occur.

The exhibition of fruits is exceedingly interesting and fascinating, so much so that one can scarcely refrain from taking part when once enthused, and the returns are not so much in money as in the pleasure and training obtained. A knowledge of varieties is a splendid thing to have, and few have it for any considerable number of varieties, largely because of lack of opportunity. Exhibiting gives this opportunity, to see and study the varieties of others as well as one's own. It also affords a splendid training to those who may aspire to qualify as judges. There is room for many more exhibitors than we now have, and with the development and improvement of our exhibitions there will be a corresponding development and improvement of the fruit interests of Canada.

The Pre-Cooling of Fruit

MUCH interest was taken in a discussion on the pre-cooling of fruit which took place at the recent Dominion Fruit Conference held, Sept. 2 to 4, at Grimsby, Ont. The delegates having investigated during the afternoon the splendid pre-cooling plant erected at Grimsby by the Dominion Government under the direction of Cold Storage Commissioner J. A. Ruddick, were prepared to discuss the subject to advantage.

Mr. Ruddick led the discussion. "We first heard of the pre-cooling of fruit," he said, "through the establishments erected in California by the railway companies. These were large plants and cooled the fruit in several cars at one time. This led at first to the impression that all fruit was pre-cooled in this way. This is not the case, as most of the plants to-day are smaller and cool the fruit before it is loaded.

"There are a number of objections to the car-cooling plant. Such plants must be large, and therefore are expensive to operate. There is a considerable wastage of the cold air, also in adjusting the ducts between the plant and each car. It is difficult to so adjust them that either more cold air than is needed is let rush into the car or too much warm air from outside is taken into the plant. Then also considerable time is wasted in adjusting the air ducts to each car. This is an important consideration.

"In our small plant here in Grimsby we can cool fruit for shipment in twenty-four hours. Such plants are useful also for the purpose of holding fruit over periods of temporary gluts, or on occasions when there may be delays in the jam factories. Thousands of dollars can often be saved in this way.

"These plants can be used also for the storage of apples in the winter season.

"Our plant is operated on the gravity brine system. Mechanical refrigeration is the other system, often called the ammonia system. There has been some objection to this system on account of the danger of explosions from the gas. Improvements in the methods have largely overcome this objection.

"There is not much difference in the cost of installing the two systems. Our plant cost us \$17,300 for the building and \$6,100 for the cold storage equipment, with some extra charges for carpentry work, the figures for which I have not obtained as yet. We spent also \$250 for electrical thermometers, which are most important and a great convenience. We are able to cool three to four carloads a day.

"When considering the cost of operation, the ice supply is the first consideration. We obtained ours in Burlington Bay. The cost of hauling was quite an item. We have put in about seventy-five tons of sea grade rock salt, which cost us about six dollars a ton laid down in Grimsby. As the control of the temperature is largely dependent on the supply of salt it is most important to have an ample supply of good quality.

"As far as effectiveness is concerned, a mechanical plant has a larger reserve of power than the gravity brine. One system is as dry as the other.

"Dampness in a plant may be due to an improper circulation of the air or to a leakage which allows warm air to come in from the outside. Where the air circulates properly the moisture congeals on the cold surface of the pipes and is drawn off.

"We obtain a temperature of twenty degrees. I have seen a temperature of fifteen degrees. It is now realized that it is more important to hold the fruit

longer than twenty-four hours if necessary to ensure its being cooled to the proper degree of temperature. An extra few degrees of temperature may make a great difference in the shipping qualities of the fruit. I don't think much is to be gained, however, by cooling the fruit much lower than the temperature of a refrigerator car. In one of our rooms to-day I noticed that the temperature was thirty-eight degrees. A temperature of forty degrees is a pretty good one for a refrigerator car. We have a canvas cover that we fasten closely around the door of the building and of the car, which prevents a leakage of air while we are loading the fruit.

PROPER LOADING

The proper loading of a car is just about as important as the pre-cooling. We use a rack, costing about eight dollars a car, which allows a good circulation of air from the ice bunkers. Some growers load so carelessly that instead of facilitating they prevent the proper circulation of the air.

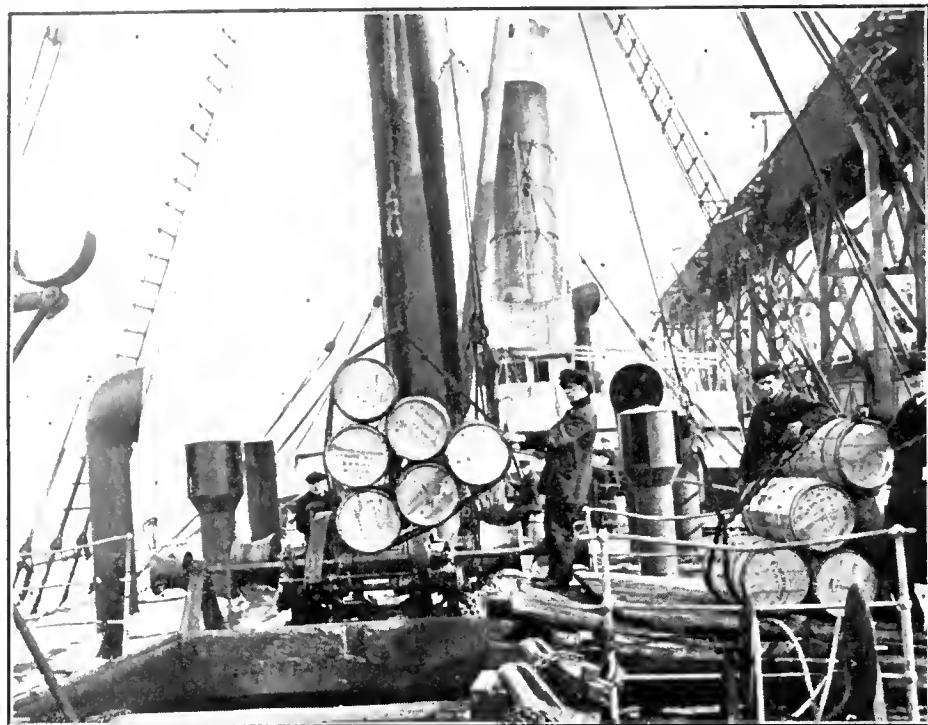
"This plant is largely experimental. It is intended to show us if it will be practical for growers to erect similar plants elsewhere in the fruit districts. In addition, this plant is going to give me a chance to conduct experiments in the marketing of fruit held at different degrees of temperature and with fruit picked and kept at different stages of maturity.

"We are charging the growers one cent for an eleven-quart basket and three-quarters of a cent for a six-quart basket, as well as eight dollars for the framework used in the car. The railways refund three dollars of the cost of putting the flooring in the car."

Q.—"How many barrels would your plant hold?"



Prominent Fruit Growers and Government Officials from all Parts of Canada Who Attended the Dominion Fruit Conference at Grimsby, Ont. September 2nd to 4th.



Loading Nova Scotia Apples at Halifax for Export

A glimpse of Mr. G. H. Vroom, the Dominion Fruit Inspector, may be obtained on the extreme right.

A.—“Five thousand to six thousand barrels.”

Q.—“How big a plant do you require?”

A.—“The one here is not nearly large enough. I heard one grower say that it should be four times as large to meet the requirements of this district.”

Q.—“What is the best insulating material?”

A.—“I do not know of anything better than shavings. They are drier and better than sawdust, which is apt to encourage mould. We have about one foot of shavings in our outside wall.”

Q.—“Do mice ever get in the shavings?”

A.—“Never when the boards are properly put on. If there are knot holes or cracks where mice can get a start, they may make trouble, but not otherwise.”

Q.—“Which is better for covering ice—sawdust or shavings?”

A.—“I would prefer sawdust.”

Mr. M. Snetsinger, Thornbury, Ont.: “One of the best features of a pre-cooling plant is that when fruit is put in it, it not only stops decay but the fruit holds up better after it is put in the car.

(Continued on page 252)

The Barrel Packing of Apples*

ALTHOUGH the box package for apples is becoming more popular every year, the greater proportion of our apples are still packed in barrels. Packing in barrels is a much simpler operation than packing in boxes, but judging from some of the fruit that we see on the market the packing methods of many growers who adopt barrel packing are in need of improvement.

Clean barrels are a prime requisite. Dirty or second-hand barrels should not be used, especially for export fruit. A necessary convenience is a proper packing table. The most convenient packing bench for orchard use is made on the same principle as the ordinary stretched couch or an enlarged saw horse

with a bolt where the supports cross each other. The upper points of these supports are joined with a two by two strip as long as the required length of the table, and on these pieces a sheet of stout burlap or canvas is securely fastened. For indoor work a more durable table can be built of lumber. It should be lined with burlap having straw or similar material placed between burlap and the wood.

When everything is in readiness the first operation is the preparation of barrels. The quarter hoop should be forced down firmly and three nails driven in in a slanting direction, and clinched upon the inside. The face end of the barrel should be nailed and the headlines placed in it. The fruit for the face should then be placed neatly in the barrel. For this

purpose it is well to support the barrel a few inches from the ground while performing the operation. The grade of the apples should be precisely the same in the face as in the rest of the barrel and there should not be the slightest attempt to get high-colored or specially perfect fruit for the face. Each apple is laid with the stem end down, the stem having been previously cut off with a stemmer. Upon no consideration should a very large or very small apple be used to finish up in the centre of the face. If the apples are colored, the second layer should be placed so that the color of the apples will show through between the apples for the first layer. After this second layer is laid the apples may be turned in from the round bottom baskets in which the graded apples have been placed. Never use any device that will require the apples to fall any distance into their place on grading table or in the barrel.

The presumption is that the grading has been done off the grading table, and that fruit of a perfectly uniform grade is put in each barrel. As each basketful is placed in the barrel, the barrel should be shaken (racked) slightly, not so as to throw the apples against each other or against the side of the barrel violently, but just sufficiently to settle them into place. It must not be supposed that this racking can be done successfully, if it is delayed until the barrel is nearly full.

When the barrel is full to within two or three layers of the top, a “follower,” a round piece of plank slightly smaller than the head of a barrel, is placed on the apples and the packer holds this firmly in place while he continues to rack or shake the barrel. The effect of this is to make a comparatively level surface upon which the last process or “tailing up” can be done. It is well to note here that the “follower” should be covered with heavy felt, such as is used by harness makers for pads.

A TEST OF THE PACKER.

The process of “tailing” a barrel of apples is the severest test of a good packer. It consists in arranging the last two or more rows of apples so that they will project slightly above the barrel. The characteristic of good tailing is to have the apples of the last two rows placed solidly and evenly so that when finished the head will touch with the same pressure each apple exposed. This is a very difficult thing to accomplish even where considerable time is taken in the operation, and it is only a skilful packer who can perform this operation quickly and well. It is a common fault with unskilled packers to allow one or more apples to project above the general surface. When pressure is put upon the barrel, these apples take the whole pressure at first, and are frequently crushed before the head is in place.

*Condensed from bulletin on Apple Packing, issued by the Dominion Fruit Division.

Planting Notes for the Fall

Wm. Hunt, O. A. C., Guelph, Ont.

THE month of October may be properly termed bulb planting month, although most of the hardy garden lilies would be better planted or transplanted, if they require it, early in September. It is far better, however, to plant lilies in October than to leave them until spring. It should be remembered, however, that bulbous rooted lilies especially should not be transplanted or disturbed oftener than is absolutely necessary, not until the bulbs have become so thick and crowded that they produce a degenerate type of flower. Lily bulbs do not like to be disturbed or moved very frequently. The same rule will apply to some of the hardy early, spring flowering, bulbous, fleshy or rhizome rooted border plants, such as the Dicentras or Dielytra. Dicentras Spectabilis, the old-fashioned Bleeding Heart, Dicentra Eximia, and the Corydalis nobilis and Corydalis bulbosa are all better planted, or transplanted in the fall, rather than in the spring. The Hemerocallis (Lemon Lily) and the Funkias or Day Lilies can also be planted in the fall to advantage.

GERMAN IRIS

German Iris can also be planted in the fall. In planting German Iris care should be taken not to bury the thick, fleshy rhizome roots far under the surface of the soil. It is best in planting these to first dig the ground well, then to firm it down well with the back of the spade, then insert the spade quite perpendicular to its full length so as to leave a narrow trench or opening the depth of the spade. In this the smaller more fibry roots growing from beneath the rhizome root should be placed, leaving the thick, fleshy rhizome root almost or quite on the surface of the soil. The ground should be pressed or tramped quite firm around the roots after planting. I have had better results by planting German Iris in the fall than by planting in the spring.

PAEONIES

The common garden herbaceous paeonies are best planted in the fall. If old clumps of these require dividing up and replanting there is no better time for both of these operations than early in October. Tree paeonies are best planted in the spring. These last-named are, however, seldom grown, as they are not hardy without winter protection outside of the Niagara district; even there they are often partially winter-killed.

Paeonies succeed best on a well enriched, fairly heavy soil. A well drained clay soil, if not of too close a texture, will suit them, or a clay loam soil is still better. Very light sandy or gravelly soils do not suit paeonies. In planting

paeony roots, the tops of the crowns or buds should be not more than an inch under the surface of the soil, when the roots are planted.

Clumps of paeony roots that have been growing for several years in the same place and become weakened from that cause should be divided and transplanted. One method of doing this is to remove the earth from one or two sides of the root and take off a section or two of the root for planting elsewhere, leaving the major portion of the root still in the ground undisturbed for a year or two, until the young plants taken off have become established and possibly started flowering. Or the old clumps of roots can be dug up entirely and then divided into sections after being dug. A good sharp spade is the best implement for this purpose.

Very often in dividing paeony roots a partial natural division may be found in the clump. By working the spade carefully where this partial division is sometimes seen, any unnecessary mutilation or cutting of the roots can be avoided. At any rate when cutting up a clump of paeonies it is best to be sure of having from three to five or six crowns or buds on each division. These divisions or sections will often give some flower the first season, if the divisions are not too weak and small. The soil should be packed firmly around the roots, leaving about half an inch of loose soil over the tops of and around the crowns after they are planted. A mulching of well-rotted barnyard manure about an inch in depth over and around them will be of great benefit. This should, however, not be put on until later about the middle of November or before hard frosts set in. This manure will serve the purpose of a fertilizer if forked in around the plants in the spring.

The same rule and methods regarding

dividing and transplanting paeonies will apply very closely in dividing and transplanting Dicentras, Corydalis, and German Iris, except perhaps that the last-named should only be mulched very lightly, if at all.

PLANTING BULBS

Outdoor spring flowering bulbs include Dutch hyacinths, tulips, narcissus, crocus, snowdrop, scilla, Chionodoxa (Glory of the Snow), and Leucocjum vernal (Snowflakes). The Fritillaria Imperialis or Crown Imperial can also be included in this list. The best time to plant all of these bulbs is about the second or third week in October. They may be planted later on until hard frosts set in, but late planted bulbs do not, as a rule, give as good results as those planted earlier.

The Crown Imperials should be planted in groups three or five inches below the surface of the soil and six or eight inches apart. These last-named are tall growing, two or three feet in height. Dutch hyacinths, tulips, and narcissus should be planted so that the tops of the bulbs are from three to four inches under the surface of the soil and from four to six inches apart, whether planted in groups, rows, or massed in large flower beds. Crocus snowdrop, scilla, Chionodoxa, or Snowflake bulbs should be planted about three inches deep and about three inches apart. I have found that all bulbs are best not planted too deep in heavy soils, in light soils they may be planted the full depth stated. Straw manure or some similar material four or five inches in depth may be placed over bulbs late in November, after the ground has been frozen slightly. Green pine boughs placed over them will also serve as a protection for bulbs.

The following are good varieties of bulbs to plant:



A Bed of *Hydrangea paniculata* as Grown in Victoria Park, Galt, Ont.

Tulips for temporary planting—where summer decorative plants are grown such as colons, geraniums, cannas, etc., early single and double flowering varieties of tulips are best.

Tulips for permanent planting—All kinds of tulips are more or less suited for permanent planting. The Cottage Garden, Darwin, Rembrandt, and Parrot tulip are specially suited for planting among perennial plants or in a position where the bulbs do not have to be disturbed when digging the border in the spring time.

NARCISSUS

Narcissus are best suited for permanent planting where they are not disturbed. In groups in the perennial border they are very effective. Good varieties to plant are Emperor, Trumpet Major, Princeps, Bicolor Empress, Bicolor Victoria, Jonquils. These are trumpet flowering varieties. Barri conspicua, Stella, Sir Watkin, Mrs. Langtry Poeticus Ornatus are good cup varieties for the border, especially the two varieties last named. The Double Van Sion and some of the Polyanthus Narcissi are also suitable for permanent planting. The paper white Narcissus and Roman Hyacinths are not useful for out of door planting, the last-named especially being too tender. Both of these are, however, very useful for growing in pots indoors in the winter, both being early flowering kinds.

All of the varieties of Dutch hyacinths are more or less good for planting. The color and the selection of good quality bulbs are the main points in selecting Dutch hyacinths. They are not as hardy as narcissus and tulips.

Scilla Sibirica, Chionodoxa lucillae, Giant Snowdrops, Leucojum vernal, and mixed crocus are the best kinds of dwarf growing bulbs to plant. These are suitable for permanent planting. The crocus are the best of these for temporary planting where summer decorative plants are made use of.

Well drained, deeply dug garden soil, not too rich in fertilizers, and not of a too heavy, clayey nature is best for bulbs. If soil is heavy clay, dig in some sand or leaf mould, or both. Avoid digging in fresh or strawy manure when planting bulbs. If manure is used it should be quite decomposed, and should not come in direct contact with the bulbs when planting them.

Plant outdoor bulbs, such as tulips, crocuses, and daffodils. They should be set in a well-drained soil about three inches deep. Cover with strawy mulch as soon as the ground freezes.

Remove all weeds from the garden before they are allowed to scatter and ripen their seed. This will reduce the labor of hoeing next season.

Fall Work in the Garden

A GOOD garden rule is to do all the work in the garden you possibly can in the fall, thus avoiding the spring rush.

Japanese lily bulbs do not reach this country until November. Therefore, heap fresh manure over the place where you wish to plant them, and you can have unfrozen ground in which to plant them.

Cannas, dahlias, and gladioli bulbs should be lifted as soon as the tops are killed by the frost. Cut off slightly above ground so that the stalk left may be used in carrying and handling the bulbs. Leave on top of the ground a few hours until the roots and soil dry, then place in a cool, though not moist, storage place. If it is necessary to place them under very dry conditions, they should be covered with dry sand or some material that will prevent the tuber drying out. If they are stored in a moist atmosphere the bulb is weakened.

If an arbor is desired on the lawn or over the porch, select a small fruiting grape vine this fall, mark it so that it will be readily found to transplant in the spring, or cuttings of the vine may be taken and set out next season.

All hardy shrubs that do not bloom in the spring can be pruned now, also vines and hardy roses.

As soon as the annuals and perennials have been killed by the frosts, the garden can be given its last cleaning. Annuals should be pulled up, and perennials cut off about three inches above the

ground. Then weed the entire garden, and, last of all burn all of the refuse, that no seeds of weeds are left for another year and no place is given insects to hide in during the winter. Be sure to burn any foliage that is diseased. Be on the lookout for any winter nests of garden pests and burn them.

If you have any unoccupied land to be used next spring plow or spade it now. The snow, rain, and frost will mellow it and kill the insects.

Poppies and cornflowers can be planted in November for early blooming next year.

A mulch of manure can be given all trees and shrubs, the bulb beds, and perennials that die down to the ground in fall. This mulch to be given after the ground is frozen. Cover perennials that do not die down but carry their green hearts through the winter (such as Canterbury bells and foxgloves) first with a little brush and then with leaves, cornstalks, or straw. The covering must not be so heavy as to exclude the air, as these plants are more often killed by rotting than by cold.

Dry sweet corn carefully for seed. It is usually more difficult to dry thoroughly than other kinds of corn. Store it where it will not be frozen during the winter.

Root crops, such as parsnips, beets, and carrots may be prevented from shrivelling in the winter if they are covered slightly with dry sand in the bin or box.



The First Prize Decorated Table at the Canadian National Exhibition

For several years in Ontario great interest has been taken in the contests held for the best decorated tables that have been held in connection with the Ontario Horticultural Exhibition. This year for the first time a similar contest was held at the Canadian National Exhibition. The winning table, here shown, was arranged by Mr. S. A. Frost, of Toronto. Yellow orchids were used freely.



A Bed of Asters in the Garden of J. Gadsby, Hamilton, Ont.

Planting Shrubs and Trees for Winter Effect

Henry Gibson, Tuxedo Park

THE impression that the spring time is the one and only time for active garden operations is being proved more and more a fallacy each year by the more enthusiastic and progressive of our gardeners. More planting and preparing for the following year's garden is being done in the autumn than ever before. This is a step in the right direction and one that should be encouraged.

Among the many activities that will aid in making the garden and home grounds more beautiful and attractive is the planting of flowering shrubs and trees. This work can be done this fall with equally as good results, and in many cases better results, than if it was deferred until spring. All that is necessary is a little extra care in protecting newly planted stock during the winter.

The number and varieties of summer flowering shrubs are legion. By a judicious selection therefrom, one may have a continuity of bloom from the time that the earliest of the Forsythias throw out their golden bracts, right through the summer and fall, to finish the season with that very popular and much appreciated shrub, *Hydrangea Paniculata Grandiflora*.

It does not necessarily follow that when the flowering period of these shrubs is past that the garden need be a dreary, bleak spot. There are many trees and shrubs whose flowering is only a passing incident, but whose fruits and berries possess the color and stability to brighten the home surroundings long after the foliage has gone. While planting operations are in progress, select a few of the best of these berried shrubs. True, not much could be expected of them this coming winter, but they will prove a source of pleasure later. A little

studied effort in the selection and disposition of certain of those trees and shrubs that possess beauty of bark and berries will go far towards making the garden a very pleasant place in winter.

SUGGESTED VARIETIES

Try grouping a few specimens, as for example, the Bayberry, or wax myrtle, with its shoots thickly clustered with wax-like masses of fruits, with the common barberry, with its orange-red berries in rich clusters. The contrast is a strong and pleasing one. With a background of these two, to the group could be added that very common and useful shrub Thunberg's barberry — a shrub that has many other attractions throughout the year. Add to this the snowberry (*Symphoricarpus Racemosus*), whose great white fruits hang persistently all through the winter, and its red-fruited relative, the Indian currant, and there exists a group that can be carried out on any scale, according to the space available.

Another group suggests itself in the viburnums: *V. prunifolium*, which grows to the size of a respectable tree and covers itself with deep blue fruit until frost destroys the berries; *V. lantana* and *V. Sieboldi*, with a foreground of *V. cassinoides* and *V. acerifolium*, covered with clusters of black berries that hang long after the foliage has fallen. Some of the thorns (*Crataegus*) that are indigenous to North America, should not be overlooked; they make small, neat trees, and should be far more frequently seen in small gardens.

The Euonymus or spindle tree is also a brilliant spot when it is smothered with its bright fruits. *Ilex verticillata*, very appropriately named winter-berry, make another picture against the snow.

The *Pyracantha* is an evergreen thorn far too little seen in gardens. It will train against the wall, and make an admirable covering and a great mass of color when bearing its clusters of orange-red berries.

Our native holly (*Ilex opaca*) is worthy of the special care needed to establish it in the garden. In order to secure the ornamental fruits a staminate bush should be planted among the pistillate ones. The rowan tree or mountain ash makes a fine specimen for a lawn. Its bright scarlet berries hang from early summer until late winter.

In planning the shrubberies about the home keep in mind the essential point—that of having something that is pleasing and attractive for the greatest length of time. Don't let the factor of flower bloom deter you from planting some of the shrubs that will help to brighten the garden well into the winter.

PREPARE YOUR SOIL

Soil required for vegetable or other plant growth in the spring should be deeply dug or trenched this fall. Any one who has grown plants in trenched ground only requires the one experience to always practise it in the future. Digging the ground two spades deep turns up dormant food supplies to the action of the air, allows the moisture to penetrate into the hard pan or subsoil, and leaves the soil porous and full of air and full of cavities, into which heated air, moisture and solvent foods for the plants are absorbed. It allows also the young plants of next season's growth to let their roots down into the loose, rich, moist, cool subsoil below, and thus keeps, no matter how great a drought may prevail. Your plants grow as by magic, and all from the important fact that your soil was prepared by thorough deep cultivation the fall previous. I could not enlarge too much on this subject, and I would count my time well spent could I but so convince the reader who has not tried it in his garden to give it but one trial.

Now all this talk is but a repetition of the same advice given every year to the garden amateur, and as this is also the month to plant your tulips, hyacinths, lilies, and other plants of the bulb family, prepare your beds for them by trenching instead of just one spade deep, and you will marvel next spring at the results.

You can have the earliest sweet peas by preparing the ground for them now. Also try planting a part of them in November. They do not make any growth until spring but will be much earlier than those planted then, and some claim their flowers are much larger.

Hardy Conifers *

W. T. Macoun, Dominion Horticulturist, Ottawa

IN a country where the native species of conifers are numerous and where immense areas of evergreen forests exist, and where many kinds of beautiful conifers from other countries can be successfully grown, it is rather surprising that so little has yet been done in Canada to grow conifers under cultivation. Perhaps it is because Canadians are so familiar with them in the wild condition that they do not show more interest than they do in cultivating these beautiful trees. For instance, when one sees the majestic, yet graceful outlines of the native white pine clothed with branches to the ground or grown as a single specimen on the lawn, or in a group massed together and showing their straight, tall trunks, one cannot but be impressed by their great beauty, and this is but one of many conifers that may be grown successfully.

With such long winters as there are in Canada the conifers are very useful in giving, in our judgment, a warmer look to the landscape which otherwise, for more than six long months, would present but the bare boughs of the deciduous trees with, perhaps, the withered leaves of the beech as a constant reminder of the summer that has gone. There are few of the broad-leaved evergreens hardy in Eastern Canada, which, on the west coast of Canada, and in some other countries are used to take the place of conifers for evergreen effects. Hence, the great importance of a free use of hardy conifers in this part of Canada.

Some of the best hedges are made from conifers, and being evergreen they also help to soften the otherwise hard lines about a residence which a Canadian winter does so much to emphasize where there are no evergreens. But perhaps enough has been said of the value of conifers in general; let us see what material there is to draw upon.

At the Central Experimental Farm, Ottawa, more than five hundred species and varieties have been tested during the past twenty-six years, of which a very large proportion have proved hardy, and in the following short list the best in our judgment have been gathered together. It is much to be regretted that the beautiful Lawson's cypress of which there are many attractive varieties is not hardy in eastern Canada, nor the cedar of Lebanon, nor Deodar cedar, nor some of the fine firs of the western coast of the United States, but with the many to choose from that are hardy we can get along without them.

If one takes the conifers in botanical

sequence, the first that should be mentioned is the maiden hair tree (*Ginkgo biloba*), formerly called *Salisburia adiantifolia*. While a conifer this is not an evergreen, but it is such a striking tree that it must not be left out. The leaves remind one of the maiden hair fern. While not particularly graceful, it is very pleasing to the eye owing to its remarkable fan-shaped foliage, and while a rather slow grower it has been used as an avenue tree in some places in the United States. The oldest trees used for this purpose are, I believe, in Washington. This tree while sometimes killing back a little at the tips may be regarded as hardy at Ottawa, some specimens there now being about twenty-five feet high.

THE YEWS

The yews, which are so commonly met with in Great Britain are not hardy at Ottawa, nor would they be satisfactory, I fear, in many parts of Ontario. There is, of course, the Canadian yew, *Taxus canadensis*, a low growing species, which is not to be despised where low growing evergreens are desired. There is, however, the Japanese yew, *Taxus cuspidata*, a splendid substitute for the common yew of Europe. It is perfectly hardy at Ottawa and a specimen planted in 1896 is now seven feet in height and ten feet in breadth. The foliage is attractive. This should prove very valuable in Canada both for massing, for single specimens, and for hedge purposes.

THE JUNIPERS.

Among the junipers are some valuable species and varieties. The most satisfactory is the Savin, *Juniperus horizontalis*, formerly called *Sabina*, a native of Canada and other countries. This is a low growing trailing species of which there are several good varieties. It is very attractive when massed, for not only has it the narrow leaves of the junipers which give most of the species a light appearance, but the branchlets are long and slender, making it particularly striking.

The variety *tamariscifolia* is most marked in this respect and has a somewhat different color effect from the ordinary form.

There are a number of other good junipers, but perhaps the most attractive is the Irish juniper, *Juniperus communis fastigiata*. This is an erect form of the common European juniper, which grows from four to eight feet in height. The foliage is light green above and silvery beneath, and the contrast in color makes it attractive and a noticeable shrub on the lawn. At Ottawa the tips are usually injured by winter, rather hurting its ap-



Delphinium or Larkspur

The larkspur will grow in any soil or situation, but one open to the sun suits them best. They thrive when the soil is well enriched. The flowers here shown were grown in the garden of Mr. J. H. Bennett, Barrie, Ont.

pearance until new growth takes place. It has not been found stiff enough for hedge purposes, the snow breaking it down, otherwise it would be quite attractive.

As a contrast to the Savin in the color of its foliage the native variety of the common juniper, *Juniperus communis depressa*, formerly *J. communis canadensis* or *alpina* makes a fine low growing conifer for massing. Another hardy juniper not often seen, but which will probably be more grown in the future is *Juniperus rigida*, a Japanese species with rather pale foliage and slightly pendulous branches, which make it quite attractive. The largest specimen at Ottawa is about ten feet high.

RETINOSPORAS.

The Japanese *retinosporas* are very useful hardy conifers. They come under the same genus as the cypress, the botanists calling them *Cupressus* or *Chamaecyparis*, and as evergreen shrubs or small trees for the lawn, have a distinct place. Some of them do much better than others. Perhaps the hardiest and most beautiful of all is that known in the trade as the *Retinospora filifera*. This has not been injured at Ottawa in any way, and has made a remarkably graceful and beautiful lawn specimen. Planted in 1893, this is now twelve feet in height and about the same in width. It has drooping branches and slender thread-like pendulous branchlets. Another good one is *Retinospora plumosa*, a compact tree and very orna-

*Extract from an address delivered before the annual convention of The Canadian Horticultural Association

mental when young. After fifteen or twenty years it loses its compact appearance and is much less ornamental. There is a very beautiful golden-leaved variety of this called *R. plumosa aurea*. These sometimes have their tips injured in winter, which makes them brown in places until new growth starts.

The little heath-like *Retinospora erioides* reaches a height of about

two feet. It is a very pretty dwarf conifer, with fine, soft, delicate green foliage, which becomes of an attractive purplish tinge in winter. In exposed places the leaves of this little shrub are sometimes injured by winter or scalded in spots. *Retinospora Squarrosa* would be one of the best if it did not scald badly, rendering it unsightly at Ottawa, except where partially shaded.

tario last season by mice girdling them during the winter. In almost every case these trees grew in weeds or grass, which gave ready refuge for mice.

Cut out all dead trees before the leaves fall this autumn. These dead parts may contain the larvae of insects which will lay the foundation for much more injury next season.

Save all the autumn leaves. Make a compact heap of them. It will be worth many dollars to you next year.

Helpful Pointers on Gardening

Carefully clean seeds which are to be used next year, such as melons, cantaloupes, pumpkins, highbush cranberries, sandehorn, and apples. These seeds may be sown in sandy soil this fall or put between layers of sand and kept until next spring. It is better to keep seed of this sort over winter in sand to prevent their drying out or becoming too wet if the ground is heavy, as where seed is planted in the fall in clay soil, the soil will be apt to pack over the seed, making it difficult for the seedlings to break through in the spring.

Celery may be kept pretty well into the winter by digging the plants so as to leave as large a root surface as possible. Remove a few of the scraggly outer leaves and set closely in a cool cellar or in boxes. An ordinary dry goods box from 14 to 18 inches wide and three to four feet long makes a good package for storing celery. Put a little dirt in the bottom of the box, then set the plants in a row close together, just covering the roots with soil. Place another row next to the one first set, as close to this as the soil will permit, in every case setting the plants about the same depth as they grew in the field. Celery stored in this way should not be bleached in the field. If the plants become dry and wilt slightly, they should be watered, care being used not to wet the foliage of the plant any more than is absolutely necessary as this is apt to cause decay. Store the boxes at a temperature as near freezing as is safe, usually about 35 degrees. If stored at a higher temperature, the celery will grow and is apt to decay.

Rhubarb for winter use may be dug just before the ground freezes hard in the fall. Leave the plants on top of the ground, slightly covered with hay, or something to prevent their drying out, and allow them to freeze for several weeks. About Christmas time the roots may be taken into the cellar, or other dark, moderately warm location, and buried in just enough soil to cover the roots. Water and allow the plant to grow.

If rhubarb is grown in the dark, the stalk is tender and very little leaf surface is formed. Plants thus forced are of little value for setting out.

Take up a few plants of parsley and place in pots or boxes in some basement or kitchen window. Parsley will grow with very little light and furnish an abundance of green material which is appreciated in the window.

ORCHARD NOTES

Grape vines should be trimmed as soon as the leaves fall and made ready to cover with soil.

Field mice not only eat almost every kind of root and bulb, but also destroy fruit trees. Do not mulch your borders and beds until after the ground has frozen, and they have found winter quarters. It is a good plan to put some poisoned bait about the beds before covering in case any of them venture in. With a good sharp hoe or spade remove all grass at least one foot from the trunk of apple, plum, or other trees, that are apt to be girdled by mice. It is a good plan to protect small trees with wire netting or by throwing a few shovelfuls of clean dirt around the trunk of the tree. Then after the first snow, trim around the tree so that there will be no place for mice to find a resting place. Thousands of trees were killed in On-

Timely Suggestions

J. McPherson Ross, Toronto, Ont.

This time of the year is the season for many a gardener to augment his stock of grapes, currants, and gooseberries by making cuttings of young wood and planting them. To be successful in raising grape vines, select well ripened shoots of this season's growth, making the cuttings from eight to ten inches long—cutting at an eye or bud for both top and bottom of the cutting. Insert the cuttings in good, prepared soil till the top of the bud is just out of the ground. Level the soil and tramp it firmly.

Mulch the ground well with rotted manure. Over the tops of cuttings in the row place sawdust to the depth of three to four inches, or even sand will answer. This has the effect of keeping the top bud dormant and the soil warms up in the spring and starts the growth in the bottom of the cutting. The top buds may be exposed about the middle of May or June first, when your cuttings will put forth shoots and make good, strong vines for fall.



A Fern Bed in the Garden of Mr. J. W. Harper, Hamilton, Ont.

Bleeding Heart, umbrella ferns, and iris may be seen.

Injurious Garden Insects*

Prof. F. W. Broderick, Winnipeg, Man.

INSECTS attack plants in various ways and the nature of the injury caused by them may be very varied. Very often the severity of the attack, particularly with those insects which burrow within the tissues of trees and plants, is unnoticed until severe injury is done. Some insects may attack the roots and injure the plant in that way, while others work on the buds or leaves, and by defoliating it seriously interfere with its development. Serious injury is often done to trees in wind breaks and in our forests by these leaf eating insects. In regions where fruits are grown the grower has to contend with the injuries of insects which bore into the fruit and cause it to become seriously deformed or to fall and decay.

While many insects bite the tissues of the plants on which they feed, others injure the plants by sucking up the tender juices. These insects, from the nature of their attack are often difficult to control and often do serious injury before remedial measures can be applied.

METAMORPHOSIS

A study of insect life is interesting from the fact that they display many remarkable habits, and that they undergo a rather intricate development. Throughout their life they may pass through a number of well-defined changes. For instance, a common house fly (*Musca domestica*) was not always a fly but lived for a time as a maggot under conditions most unsanitary. As it develops towards a fly, it rests for a time as a dormant pupae, which neither eats nor moves before it emerges as a full grown fly. The period of time that is required for insects to complete their development may vary from a few days, as in the case of our common mosquito, to several years, as in the case of the June beetle.

In the spring and early summer more or less injury is done to garden crops by insects affecting the roots, the more serious of which are the garden cut worms, which are the larvae of night flying moths belonging to the genus *Nocturdae*. With tender garden plants, if unchecked, the ravages of cut worms may become serious.

WHITE GRUBS

In gardens the work of white grubs, which are the larvae of a large brown beetle known as June Beetles (*Lachnosterna fusca*) may often be detected. These insects require from two to three years to complete their development and during their larval period are found feeding on the roots of tender garden plants and grasses. Poultry are fond of these

large insects and if given an opportunity will destroy large numbers of them.

WIRE WORMS

Wire worms are often found in the soil attacking the roots of garden crops as well as field crops. These insects, which are of a peculiar amber color, develop into long narrow beetles known as Click Beetles (*Agriotes lineatus*). They are called Click Beetles because when placed on their backs they turned over with a peculiar clicking sound. Their resistance to poisons makes their destruction difficult. Late fall plowing, which breaks up the pupae cells, is an effective way of dealing with them.

WHITE MAGGOTS

Every year injury is done to the roots of onions and cabbages by small white maggots. These insects prove to be the larvae of small flies (*Phorbia cepitorum* and *P. Brassicae*) about the size of the common house fly. The eggs are laid by the adult insects on the surface of the soil near the roots of young plants. The newly hatched larvae works into the soil and begins burrowing into the roots of the young plants causing a decay. They pupate in the ground and emerge later as flies. In their control rotation of crops should be practiced and a strong growth of plants should be stimulated by the use of such quick acting fertilizers as nitrate of soda. Watering plants every seven to ten days with hellebore solution in the proportion of two ounces to one gallon of water is quite effective in controlling this insect.

Among the insects affecting the leaves of garden crops are the larvae of moths, butterflies and beetles, and the adults of some of the leaf eating beetles.

CABBAGE WORM

An insect common on the leaves of cabbage is the cabbage worm, the larvae of the imported cabbage butterfly (*Pieris rapae*.) These larvae, which are of a pale green color, do considerable damage by eating holes in the leaves of the cabbage. They later develop into the pale white butterfly seen flitting about the cabbage fields during the summer. Collecting and destroying refuse lying about the cabbage fields and spraying the leaves of the cabbage with a solution of white hellebore in the proportion of two ounces to one gallon of water is effective in holding the insect in check.

BLISTER BEETLE AND POTATO BEETLE

Leaves of the potato are frequently destroyed by leaf eating insects. The old fashioned blister beetle (*Epicauta pennsylvanica*) and the Colorado potato beetle (*Leptinastora decemlineata*) are frequently found in the potato field. The

latter which was first found in the state of Colorado, is particularly destructive, the larvae and adults eating both leaves and stems. There are usually two broods during a season, the second being most destructive. The insect winters as adult beetles, and for this reason all refuse should be collected and destroyed. The spraying of the leaves with arsenical poisons, such as Paris green or arsenate of lead, should be effective in keeping these insects in control.

CURRENT WORM

The currant worm or currant saw fly (*Nematus ribesi*) is particularly injurious to the garden red currant by feeding on the leaves and completely defoliating the plant. The greenish larvae which hatch from the eggs laid on the under surface of the leaves, are very active feeders and soon strip off all the leaves if unmolested. When fully developed they pupate and later emerge as an active four winged fly. They may be controlled by the use of white hellebore in the proportion of two ounces to one gallon of water.

Diseases of Ginseng

Prof. J. E. Howitt, O.A.C., Guelph, Ont.

Sclerotinia disease is widely spread. It is reported as occurring in ginseng gardens in Michigan, Wisconsin and Ohio. I have never been able to find it in Ontario, nor have I met any growers who are familiar with it. Although quite widely spread it does not appear to be very destructive, only a plant here and there in the beds being destroyed by it.

This disease usually appears during wet weather in the spring or early summer. Attacked plants wilt and fall over owing to the rotting of the stem at the base. This rot usually extends into the crown of the root. The rotted stems are soft and white and often covered with a cottony, felty, fungus growth. Black resting bodies of the fungus are often found inside the stem in the pith. The diseased roots become soft and doughy, very watery, and tough, but non elastic. The diseased parts remain white, hence the name White Rot. The fungus threads penetrate through the tissues of the root and grow out through the breathing pores (Lenticels), forming tufts of white, felty, fungus growth in which black hard resting bodies develop, varying from the size of a grain of wheat to that of the end of the finger. These lie in the soil and carry the disease over the winter.

To eradicate the disease remove and destroy the affected plants before the resting bodies have time to form. Soak the soil from which the roots have been removed with a solution of copper sulphate.

*Extract from a paper read at the annual convention of the Manitoba Horticultural Association.



Fruit and Vegetable Production Combined

Mr. Taylor's young orchard, Rutland Bench, B.C., in which onions were grown with marked success.

(Photo by G. H. E. Hudson, Kelowna, B.C.)

Forcing Rhubarb*

Claude Dyer, Canadian Trade Commissioner, Leeds, Eng.

ABOUT three-quarters of the total amount of forced rhubarb grown in the United Kingdom comes from within a radius of ten miles of Leeds. Formerly the proportion was even higher, but the methods of production in Leeds have been gradually extended to other parts of the country.

The annual crop in the Leeds rhubarb district is between twelve and fourteen thousand tons, and is valued at from \$650,000 to \$900,000. The amount of capital sunk in the industry is estimated at \$1,250,000. London takes the best quality and large quantities are bought by other cities. Considerable supplies are also exported to Germany and other countries.

The method of cultivation in force may be described for the benefit of growers in Canada. In its simple form the forcing process was merely one of surrounding each rhubarb root with a pot for the purpose of protecting it against the cold and excluding the light. The system has now been elaborated. In place of the crude environment of the pot, big sheds, some of them with a floor space of a thousand square yards, are used. Heat is supplied by coke fires and flues running the length of the shed, and the temperature can be scientifically regulated so as to ripen the rhubarb when it is required.

PROCESS OF FORCING RHUBARB

The forcing of rhubarb is carried on in winter, the season lasting from about October until March. Before being taken into the forcing shed the plant spends two or three years out in the open field gathering strength. It yields no crop

while out of doors; the stalks and leaves grow but are not gathered. Formerly this process of strength accumulation was considered wasteful, but experience has taught growers that leaves are essential to the building up of the plant. If the leaves are taken away the supply of carbonaceous matter is materially curtailed and the plant is deprived not merely of strength but also of the opportunity of gathering strength. The leaves and stalks are therefore now allowed to remain until they rot away. They are not, however, altogether wasted material, as the decayed matter proves useful to the soil. In this way fine productive roots are built up.

When the forcing season arrives these roots are plowed up, taken into the sheds and there planted close together. A large shed with an area of a thousand square yards will take the yield of anything from two to five acres, according to the weight of the roots. Light is entirely excluded from the sheds, and through its exclusion the forced rhubarb is given its distinctive delicate coloring. In a few weeks after planting, white shiny bulbs spring from the roots. These develop into brilliant yellow leaves, and at the end of six to eight weeks, the stalks, pink or crimson, are ready for pulling. The first roots are transferred from the fields to the sheds for forcing usually at the end of October and the crop is ready about Christmas. A second lot of roots then goes through the same process, and the produce is ready for marketing early in March.

The size of the rhubarb farms in the neighborhood of Leeds varies from a few acres up to fifty acres and over. About

six thousand roots are planted to an acre, and if such a quantity yields four thousand roots suitable for forcing, the grower is satisfied. Nowadays the roots are destroyed after yielding one crop of forced rhubarb, whereas, formerly they were replanted in the ground to be used again. The grower finds that if he forces the yield of two-thirds of his land he can replant it all from the crop upon the other third.

What Growers Say

When potato growers have large quantities of seed to be treated, formaldehyde gas, generated by the use of potassium permanganate, is the most practical disinfecting agent. Place seed tubers in bushel crates or shallow slat-work bins in a tight room. For each thousand cubic feet of space spread twenty-three ounces of potassium permanganate over the bottom of a large pail or pan in the centre of the room. Pour over this three pints of formalin, leave the room at once and allow it to remain closed for twenty-four or forty-eight hours. If one is obliged to plant scabby potatoes, one of the methods of disinfecting here recommended should be employed; but absolutely clean potatoes is a luxury which every farmer should enjoy.

Onion seed grown under certain conditions seems to develop thick necks. Our experiments conducted over two years show two definite causes for thick necks. One was climatic conditions and the second the date of sowing. For this climate one needs seed that will mature rapidly and the best time to sow is as soon as the ground will permit.—G. W. Baker, Tamblings, Ont.

In order to get the maximum results from storing any crop it is essential to have the crop well grown. In all cases, with the exception of tomatoes, celery and the like, which of necessity must be placed in storage in an unripe state, the produce to be stored should be ripe and sound.

In the early fall a good top dressing of hardwood ashes for the strawberry bed is most valuable. Beds supplied with this top dressing of ashes produce fruits of the finest possible flavor and color.—W. A. Dier, Ottawa, Ont.

One good result from transplanting celery is that the straight root or tap root is broken, causing a large mass of fibrous roots to be formed.—F. F. Reeves, Humber Bay, Ont.

When taking up celery plants in the fall they must be handled carefully so as not to break or bruise the stock, which hastens decay.—J. C. Black, Truro, N.S.

*Special report to the Department of Trade and Commerce, Ottawa.

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Sworn detailed statements will be mailed upon application.

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THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

METHODS OF THE FUTURE

The Dominion conference of fruit growers, which took place last month at Grimsby, Ont., was noteworthy, possibly not so much for the business completed—important as that was—as for the glimpses it gave of problems still unsolved that will confront us in the possibly not distant future. One of these relates to the marketing of the apple crop. History, by the light it throws on how difficulties have been overcome in the past, often enables us to grapple more intelligently with the issues of to-day. The history of cooperative effort in the marketing of fruit in Canada is soon told. Yet it points to wonderful possibilities in the future.

Within the memory of most of us there were no cooperative apple growers' associations in Canada. Twelve years ago local associations began to be formed in leading fruit districts. A little later these local associations began to cooperate and form central organizations for the marketing of their crops. In Ontario, for several years, there has been a provincial organization which has represented a number of the local organizations of the province. Within the past three years, what is practically a provincial organization has sprung into existence in the Annapolis Valley of Nova Scotia and now controls the major part of the fruit output of that great apple producing district. In British Columbia there are a number of large central associations which cooperate in various ways through the British Columbia Fruit Growers Association and Department of Agriculture in gathering reliable information relating to crop and market prospects and in standardizing their pack.

So much then for the developments of the past few years. What may we expect for the future? An incident which happened at the Dominion Fruit Conference gives us an inkling. The Nova Scotia growers showed that as a result of a threatened advance in steamship freight rates from Halifax they might be unable to find a market for a large part of their crop in the British markets. This would force them to flood the Montreal, Ontario, and western markets with their apples to the disadvantage of the apple growers of Ontario and British Columbia. The growers from these provinces were quick to see the point. They realized that what had appeared at first to be a provincial issue was really of national importance. They quickly agreed to cooperate with Nova Scotia fruit growers in waiting upon the Dominion Government in an effort to have the threatened advance in steamship rates prevented. Thus it was made clear that anything that materially affects the advantageous distribution of the apple crop of one province is likely to have an important bearing on the prosperity of the fruit growers in the other fruit growing provinces.

Thus has the necessity been revealed for the creation within a few years of a strong central organization which will largely control the marketing of the apple crop of the Dominion. Within a few years the various provincial organizations will have increased in strength. When this has taken place they will be quick to cooperate among themselves. Each may be expected to report to the other what their output will be of the different varieties and grades. They

will know the consumptive possibilities of the different markets. The placing of their crops on these different markets to the best possible advantage of each, as well as to that of the consumer, will then become a comparatively easy accomplishment. Together with all this will go joint efforts to develop European markets for the eastern growers and the southern Pacific and Asiatic markets for the growers of the west. Thus it will be seen that the future is fraught with great possibilities and that it will demand the services, in executive positions, of fruit growers of outstanding ability.

CIVIC IMPROVEMENT

There is a great variation in the interest taken by the citizens of different Ontario municipalities in the improvement of their cities by the laying out of parks and drive-ways, the planting of trees, and the making of other civic horticultural embellishments. The responsibility for this condition rests largely on the local newspapers and horticultural societies. Where these show proper leadership it is not difficult to obtain the hearty cooperation of the citizens to any reasonable expenditures.

As far as we have been able to learn, Toronto stands far in the lead of any other town or city in Canada in the interest it takes in civic horticultural improvement. Last year with a population of slightly less than five hundred thousand its expenditures on parks and boulevards amounted to over eight hundred thousand dollars, or to one dollar seventy-four cents per head of its population. The city of Ottawa also makes large expenditures, but being the capital of the Dominion its funds for these purposes are largely derived from Government sources. Even at that it does not expend nearly as much per capita as does Toronto.

The expenditures for park purposes of many towns and cities in Ontario fall far below what they should be to be even creditable. Per capita expenditures of a number of Ontario municipalities last year were as follows: Woodstock, forty-eight cents; Hamilton, forty-six cents; London, thirty-one cents; Galt, twenty-seven cents; Kingston, fourteen cents; Belleville, five cents. Some others spent practically nothing at all. Truly there is room and need for a vigorous campaign in Ontario for civic improvement.

A number of cooperative apple growers' associations, as well as private growers, are likely to experience difficulty this year in marketing their crops to good advantage. There are many thousands of people in the towns and cities of Ontario who would readily pay two dollars to three dollars and fifty cents a barrel for good apples if they knew where they could be obtained. By advertising in the daily papers of the province that they will be willing to ship direct it should be possible for producers to do a mail order business this fall with many consumers to excellent advantage. We would like to see the experiment tried.

What is the Ontario Minister of Agriculture arranging to do to help the apple growers of Ontario to market their crop this fall in the towns and cities of the province to good advantage?

Those cooperative apple growers' associations which this year, in their anxiety to market their output, are spreading false tales about their competitors have much of which to be ashamed.

British Columbia in 1914-15 appropriated one hundred and five thousand dollars to promote the horticultural interests of that province. In spite of her vastly larger production of fruit Ontario will have to "go some" to equal that appropriation.

SOCIETY NOTES

St. Thomas

The membership of the St. Thomas Horticultural Society has long since passed the 1,000 mark and is rapidly forging towards 1,300. This year 100 public beds were planted on the boulevards, containing over 5,000 plants. Over 4,000 roses and shrubs were given to the members last spring and 21,000 tulip bulbs have been ordered for this fall's distribution among the members, as well as 14,000 for use in the public beds. The beds will be of solid colors and of good varieties. A practical gardener has been engaged to take charge of the beds. There was a large number of entries in the contest for lawns, gardens, factories, and schools. The prizes, consisting of cut glass vases, medals, lawn mowers, and water rollers, are valued at over \$400. The contest between the schools this year was so close that three of them stood equal on the first inspection.

Hamilton

As a result of much good work, including the undertaking of a number of new activities, the Hamilton Horticultural Society his year has taken on a new lease of life, with prospects improving for still better work and an increased membership in the future. As much of the credit for this condition has been due to the efforts of the efficient and indefatigable secretary, Mrs. Ada L. Potts, the directors recently showed their appreciation of Mrs. Potts' good work by presenting her with a handsome umbrella, suitably inscribed. Many nice things were said by the directors of Mrs. Potts' accomplishments. Descriptions of some of the leading gardens of the city have been published in some of the city papers, and public visits have been made to some of the best gardens.

Dundas

The Dundas Horticultural Society, only recently organized, has already attained a membership of almost one hundred. The committee is still at work canvassing for members.

Peterboro

Mr. E. F. Collins, Superintendent of Parks, Toronto, acted as judge recently in the annual lawn and garden competition, in which much interest was taken. He pronounced the lawns of Messrs. T. F. Matthews and S. D. Hall as being almost perfect. Mr. W. J. Kennedy won the prize for the best display of flowers, with Mr. John Williams a good second.

During July, Bliss H. Fawcett, Upper Sackville, N.S., marketed twelve tons of strawberries from six acres of land. To gather this crop he employed forty men, women, boys and girls, for a month. The industry employs five men and five women from May 1 to October 1, keeping down weeds, planting, and keeping the patch in order. Mr. Fawcett planted six acres of new plants this season, and will have twelve acres in strawberries for the market in 1915.

The Fourth Dominion Fruit Conference

THE fourth Dominion conference of fruit growers was held at Grimsby, Ontario, September 2nd to 4th, under the auspices of the Dominion Department of Agriculture. As will have been seen by the list of resolutions adopted by the conference, published on page 237 of this issue, many important subjects were dealt with. The conference proved, as did its predecessors, that the best interests of the fruit industry of Canada require that national gatherings of this kind shall be held in order that national problems may be dealt with on a national basis. These gatherings also serve to bring the scattered fruit interests of Canada into closer touch.

The idea of holding the conference in Grimsby, Ontario, which is in the heart of the Niagara fruit district, proved a good one. The delegates were able to concentrate all their attention on the business in hand until it was completed, and at the same time the fruit growers from the other provinces were given an opportunity to get in touch with the great fruit interests of the Niagara district.

CONVENTION PROCEEDINGS

The conference opened on Wednesday afternoon, September 2nd, with practically all the delegates present. Canada's recently appointed Dominion Fruit Inspector, Mr. D. Johnson, was appointed chairman, to preside at all the meetings. Tables were so arranged throughout the hall that the delegates from the different provinces were able to sit in separate groups around conveniently arranged tables. On the convention platform was a display of fruit from the different provinces, which was examined with much interest by the delegates.

THOSE PRESENT

The conference was a most representative one. The delegates present were as follows:

Prince Edward Island—A. E. Dewar and Theodore Ross, Charlottetown.

Nova Scotia—F. W. Bishop, Paradise; Prof. W. H. Brittain, Truro; Manning K. Ellis, Port Williams; A. K. McMahon, Aylesford; S. C. Parker, Berwick; W. W. Pinco, Waterville; Prof. M. Cumming, Truro; A. S. Banks.

New Brunswick—W. B. Gilman, S. B. Hatheway, and A. G. Turney, Fredericton; H. H. Smith.

Quebec—Robt. Brodie, Westmount; Prof. T. G. Bunting, Macdonald College; Rev. H. A. Dickson, Rectory Hill; N. E. Jack, Chateauguay; Rev. Father Leopold, La Trappe; Peter Reid, Chateauguay Basin; R. A. Rousseau, Acton Vale; Mr. Fisk, Abbotsford.

Ontario—G. C. Brown, Brighton; W. H. Dempsey, Trenton; Dr. A. J. Grant, Thedford; R. W. Grierson, Oshawa; C. W. Gurney, Paris; P. W. Hodgetts, Toronto; Elmer Lick, Oshawa; A. Onslow, Niagara-on-the-Lake; A. W. Peart, Burlington; M. Snetsinger, Thornbury; Robt. Thompson, St. Catharines; F. S. Walbridge, Belleville; Prof. J. W. Crow, Guelph.

Manitoba—Prof. F. W. Broderick, Herbert Emery, and D. Dingle, Winnipeg.

Saskatchewan—C. L. Walker, Regina.

British Columbia—Thos. Abriel, Nakusp; J. G. Metcalfe, Hammond; John E. Reekie, Kelowna; R. Robertson, Vernon; Jas. Rooke, Grand Forks; R. M. Winslow, Victoria; Jas. Johnson, Nelson; G. J. Coulter, White, Summerland.

In addition to the foregoing a number of other prominent people were present, in-

cluding W. T. Macoun, Dominion Horticulturist, and J. A. Ruddick, Dominion Dairy and Cold Storage Commissioner, of Ottawa; Prof. L. Caesar, Provincial Entomologist, Guelph; P. J. Carey, of the Dominion Fruit Division, Toronto; and the following fruit inspectors: R. G. L. Clarke, Vancouver; R. R. Waddle, Simcoe, Ont.; C. W. Baxter, Ottawa; G. H. Vroom, Middleton, N.S.; A. H. Flack, Winnipeg; F. L. Gable, Ancaster; B. Honsberger, St. Catharines; J. J. Pritchard, Harrison; W. G. Smith, Burlington; F. L. Derry, and E. H. Wartman, Montreal. In addition to the fruit inspectors, other prominent fruit growers present included Senator E. D. Smith of Winona, M. C. Smith of Burlington, and many others.

OPENING SESSION

The opening session on Wednesday afternoon was occupied with the organization of committees. This was followed by a most able address, entitled "Transportation as Applied to Fruit," by G. E. McIntosh, Traffic Expert for the Ontario Fruit Growers' Association. Mr. McIntosh had prepared a paper, the reading of which occupied an hour. He pointed out that until recently fruit growers had devoted their attention almost entirely to improving their methods of production. Of recent years it has become evident that the question of the marketing and general distribution of the fruit crop is almost equally as important. In this connection the question of transportation presents many important problems. Lack of space makes it impossible to more than mention this paper here. Extracts from it will be published from time to time in *The Canadian Horticulturist*. Mr. McIntosh showed that Canadian railways discriminate against the fruit growers in many important respects and that they are not giving the service that is provided by the railroads in a number of the States in the American Union, which were mentioned by Mr. McIntosh. Later the conference adopted a resolution asking the Government to investigate the various points brought out by Mr. McIntosh.

COLD STORAGE PROBLEMS

On the conclusion of the afternoon session the delegates were invited by Cold Storage Commissioner J. A. Ruddick to visit the pre-cooling and cold storage plant established recently by the Dominion Government at Grimsby, an illustration of which appeared in the July issue of *The Canadian Horticulturist*. The visit proved a most interesting one. Several carloads of fruit were in the building being cooled in the different chambers preparatory to shipment. A car of fruit was being loaded while the delegates were there. Mr. Ruddick and his assistant, Mr. Smith, took the delegates all over the plant, explained its construction, its cost, the system of refrigerating used, and the benefits to be derived by the location of such a plant in all large fruit exporting districts. The plant is splendidly constructed and reflects credit on the Department of Agriculture.

At the Wednesday evening session Mr. Ruddick gave an address on the pre-cooling of fruit. The subject being an important one was followed with interest by the delegates. This address and discussion is reported separately.

STEAMSHIP RATES

One of the most striking incidents of the conference took place over a matter brought up by the Nova Scotia delegates. Mr. McMahon informed the conference that Nova Scotia growers were faced with



Hon. Martin Burrill, Dominion Minister of Agriculture

Being a practical fruit grower, Hon. Mr. Burrill is much interested in the fruit industry. During the three years he has been Minister of Agriculture, he has held two Dominion conferences of fruit growers. He attended and spoke briefly at the conference held at Grimsby, Ont.

a serious situation due to the fact that the steamship companies carrying the bulk of the Nova Scotia apple pack from Halifax to the Old Country had given notice of a proposed advance in carrying charges of 32c. a barrel. As a reason for this they had mentioned additional war risks. At the time the advance was announced it was known that the additional charges due to the war risks would not amount to more than .15c a barrel. The steamship companies were evidently endeavoring to take advantage of the situation to impose an additional burden on the fruit growers. There was reason to believe also that the advance had been contemplated before war was declared. In view of the fact that the Government subsidized these steamship companies heavily Nova Scotia fruit growers felt that the Government should take action to prevent such a large increase in rates. Mr. McMahon appealed to the conference to assist the Nova Scotia fruit growers in obtaining a satisfactory adjustment.

At first, as the Nova Scotia growers explained the situation, the growers from the other provinces listened with interest, but without showing any tendency to give special support to the Nova Scotia growers in dealing with the situation. They were ready to do what they could to help, but seemed to look on it as a Nova Scotia matter which the Nova Scotia growers should deal with themselves. A sudden and remarkable change in this attitude was brought about when one of the Nova Scotia delegates pointed out that the situation was one which affected the other provinces fully as much as it did Nova Scotia, because unless a considerable reduction was obtained in the proposed advance in the steamship rates it would practically prevent the shipment of certain varieties of Nova Scotia apples now shipped to European markets. Being unable to market these apples in Britain, Nova Scotia growers would be forced to unload them on the markets of Ontario and the west at low prices, where they would compete

with the products of the other provinces.

This point scored a bull's eye. Within a few minutes it was decided to have a delegation wait on the Government at Ottawa. Ontario and British Columbia quickly agreed to stand the expense of being represented on that delegation in order to prove to the Government that it was a matter of national importance. The delegation was duly appointed and waited on the Government on the following Saturday. The Canadian Horticulturist has since been looking into the matter. Partly as a with an encouraging reception. At the request of the United Fruit Companies of Nova Scotia the Government had already been looking into the matter. Partly as a result of the work of Sir Geo. E. Foster, and partly on account of the fact that the United Fruit Companies had commenced to charter boats independent of the combine, the growers have obtained a reduction in the proposed advance of not less than .19c a barrel, and are satisfied with the new arrangement.

The incident brought home to all present the solidarity of interests between the fruit growers in all parts of Canada, and seemed to indicate the possibility that within a few years the fruit growers in the different provinces will be cooperating in the marketing of their crops. During the discussion Mr. A. W. Peart pointed out that cold storage charges on shipments of fruit had been greatly increased this year as compared with last year. Mr. Ruddick stated that one of the chief difficulties this year is going to be to get any space at all on vessels, as many of the steamships will be required to be used as transports, and may not be available to handle apples when most needed. About twenty vessels would be required to transport the troops at Valcartier alone. The Nova Scotia delegates did not seem to think that there would be much difficulty in their obtaining all the accommodation necessary. Their chief concern was to prevent the proposed advance in rate.

THURSDAY'S SESSIONS

According to the programme, Thursday morning was to be devoted to an automobile ride through the Niagara district. The drive lasted, however, until six o'clock. Most of the automobiles were loaned by local fruit growers. The delegates were taken from Grimsby to the Fruit Experiment Station at Jordan Harbor, and from there to St. Catharines and Niagara Falls, where dinner was served. The drive took the delegates through some of the best fruit sections of the Niagara district.

SUCCESSFUL COOPERATION

At the Thursday evening conference, Mr. A. E. Adams, the secretary of the United Fruit Companies Ltd. of Nova Scotia gave a most instructive address entitled, "Systematic Cooperation in Nova Scotia." Mr. Adams traced the initial efforts of the fruit growers of Nova Scotia to cooperate, their failures and successes. He told of the Acts that it was necessary for them to get passed through their local Legislature in order that they might cooperate effectively, and concluded by describing the wonderful success that has been attained. Last year the United Companies handled 6,044 tons of fertilizers or over 300 car loads, saving at least \$18,000 to their members on fertilizers alone. In addition they handled 575,000 pulp heads, 35,000 pounds of nails, 67,800 pounds of grass and clover seed, 104,000 pounds of arsenate of lead, 8,900 rods of wire fencing and 1,800 barrels of lime-sulphur, as well as handling many other articles of a similar nature. Last year the companies

did a fire insurance business, exceeding \$450,000. Extracts from this paper will be published in The Canadian Horticulturist as space permits. In reply to questions Mr. Adams stated that the Companies do not sell to middlemen, nor to private individuals. Their sales are made to their local affiliated companies. Where sales are made to outsiders the companies make a profit on each transaction and the outsiders do not participate in the rebates given to members.

FRIDAY'S SESSIONS

Three busy sessions were held on Friday. These were devoted mainly to discussions of the Inspection and Sales Act and to the standardization of packages. Mr. Robt. Thompson of St. Catharines was the chairman of the committee appointed to deal with standard packages. This committee reported that they had decided after thorough discussion not to recommend any changes in the present standard barrels or boxes. The six-quart and eleven-quart baskets were also looked on as standard. It was felt that it was not desirable that there should be any change here, also except that the style of basket used might be standardized as at present some of the manufacturers were making baskets that while they contained the same amount of fruit, were made in different shapes.

Senator E. D. Smith said that previous to 1900 there was no standard size of basket. The twelve-quart basket was commonly used. Gradually growers began to shave off half an inch in the length or width or depth of the basket, while still calling it a twelve-quart basket. This continued until the so-called twelve-quart basket contained only nine quarts. Berry boxes were not touched for a long time, but finally the growers began to tamper with them. When standards were set and the fruit division was given power to deal with the matter an improvement in conditions became noticeable.

Fruit Commissioner Johnson wanted to know if the committee did not deem it advisable to require that the baskets should be made of a certain thickness of veneer to ensure their being made of good material.

Mr. Thompson replied that this did not seem practical, as thick veneer made of poor material often was not as strong as veneer, that while thinner was made of better material.

Senator Smith agreed with this contention.

Commissioner Johnson suggested that the law might require that the material used should be of good quality.

THE STANDARD BOX

A discussion was held as to whether or not it is advisable to discard the Canadian standard apple box in favor of the standard box recently adopted by the United States. The discussion soon showed that the British Columbia growers, who have had the most experience in box packing were seriously divided on this point. Aside from some of the western growers, however, the opinion of the western dealers present and others who spoke seemed to be favorable to adopting the American standard box as the Canadian standard. The Canadian standard is 10x11x20. The American standard is 10½x11½x18. It was said that while the American box is twenty odd inches smaller than the Canadian box, it is a little squarer and gives the public the impression that it is larger and holds more. It therefore sells better. It also holds better in the car and lends itself better to certain packs.

Dominion Fruit Conference

At the recent Dominion Fruit Conference, during the discussion of the Standard apple box, one of the arguments advanced favoring the Canadian box was that it can, with only a slight alteration, be made suitable for use in the New South Wales trade.

Messrs Ells and Parker said that as Nova Scotia is beginning to adopt the box with the idea of going after some of the United States trade they would like to have a standard box definitely decided upon.

The discussion was concluded by the adoption of a resolution asking the Government to investigate the matter and report as to the best box.

A NO. 3 APPLE

There was a big discussion over what constitutes a No. 3 apple, and whether or not that grade of apple should be allowed to be placed on the market. The British Columbia delegates claimed that they did not market any No. 3 apples. One of the Nova Scotia delegates said he had seen apples graded No. 3 sold that were a disgrace to the trade. There were some growers who would not spray or take proper care of their fruit as long as they thought there was any chance to sell their No. 3 apples.

Mr. Laing, a fruit dealer of Winnipeg, said that he had handled large quantities of No. 3's with good results, but they were a better lot than usual for that grade.

Fruit Inspector G. H. Vroom said that he had been in England and was asked by some of the dealers why the Nova Scotia growers shipped No. 3 apples. He replied by asking them why they continued to buy them. "Well," they said, "we feel that when men go to the trouble of packing a barrel of apples and sending them over here it is too bad not to be able to

make them any returns." If, therefore, their No. 1 apples sell for 18 shillings, their No. 2 apples for 14 shillings, and their No. 3 apples for little or nothing, we dock a little off their first two grades in order that we can make the growers some return on their poor grade.

Mr. M. K. Ells claimed that there are apples not quite good enough for No. 2's that are too good to be wasted, and for which in parts of the Maritime Provinces and Quebec there is a good demand for use for cooking purposes.

Commissioner Johnson summed up the discussion by saying the question seemed to be governed largely by crop and market conditions. In years when there was a large crop of good quality of fruit it was a mistake to market No. 3's. Other years when there is a shortage in the better grades and a larger percentage than usual of the poorer grades there was often a demand for the poorer grades.

It was decided not to recommend any change in the definition of a No. 3 apple as given in the Inspection and Sale Act.

There has been no serious objection taken to the 20x11x10 apple box. Why not legalize it for the whole of Canada, both for the home trade and for export?—W. A. Pitcairn, Kelowna, B. C.

The Oregon Agricultural College, at Corvallis, Oregon, has issued Bulletin 117, entitled "Loganberry By-Products," by C. I. Lewis and F. R. Brown.

There has been formed in Louth township a new cooperative association, which will be known as The Port Dalhousie Co-operative Fruit Growers' Association. The capital is placed at \$10,000, in \$50 shares.

Douglas Gardens

OAKVILLE, ONT.

The stagnation in many lines of business caused by the European War furnishes an opportunity for many business men to make improvements in their gardens and home grounds. No line of plants will give such large results for the outlay as Herbaceous Perennials. Of these the Paeony, Iris, Delphinium, Phlox, Helenium and Hardy Chrysanthemum are the best six. We have fine stocks of these and of many others, grown in our own grounds—all described in our Fall Planting List, just issued, which is sent free on request.

We offer 50 varieties of Paeonies at from 30c to \$2.50 each; 30 vars. of Irises at from 15c to \$1.00 each; 5 vars. of Phloxes at 15-20c each; 5 vars. of Heleniums at 15-20c each; Gold Medal Hybrid Delphiniums at 20c each, 10 for \$1.50; 5 vars. of Hemerocallis at 15-20c each; 6 vars. Astilbe and Spirea at 15-35c each; 4 vars. of Campanulas at 20c each; 5 vars. of Heuchera at 20c each, Dicentra Spectabilis at 20c each; 3 vars. Shasta Daisies at 25c each, 10 for \$2.00, and many others.

At the hour of writing, it is doubtful whether the usual importations of Daffodils and Tulips can be received because of the war. The best substitute for these is Irises, of which we have a good stock. These should be planted at the earliest day possible in September.

Cash with order, including postage, as per schedule, please.

JOHN CAVERS

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Staves, Hoops

Heading, Head Liners

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For Packers who are unable to get barrels made, we can arrange to furnish them with Apple Barrels at lowest prices for first-class Barrels.

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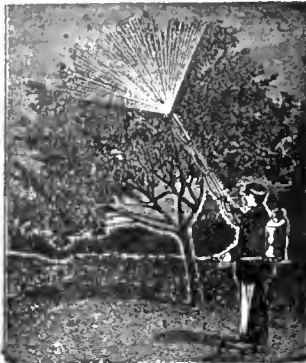
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You pay him only \$3.00 for 365 full 24-hour days a year—and nobody knows how many years he'll last, for he has never been known to wear out.

His board amounts to a drop of oil every twelve months—that's all the pay he asks.

His work is getting the farm hands in the fields on time, starting the before-breakfast chores on time, and telling the right time all day so the women folks can have the meals on time—these are easy jobs for him.

Big Ben stands seven inches tall. He is triple-nickel plated and wears

an inner vest of steel that insures him for life. His big bold figures and hands are easy to read in the dim morning light. His keys almost wind themselves. He rings for five minutes straight, or every other half minute for ten minutes as you prefer.

The next time you're in town just drop in at your dealer's and ask to see Big Ben. If your dealer hasn't him, send a money order for \$3.00 to Westclox, La Salle, Illinois, and he'll come to you, transportation charges prepaid, all ready for work. Hire Big Ben for your farm and he'll prove the promptest hired man on the place.

The Pre-Cooling of Fruit

(Continued from page 240)

When hot fruit is put in a car the ice in the bunkers goes down fast."

Mr. Ruddick: "One objection to cooling fruit in cars is the long time it takes to cool the fruit. In some cases it requires three or four days to cool the fruit."

Q.—"Would you prefer one large or several small plants?"

A.—"Where there are several storage warehouses around one shipping point, a central plant connected with the others is probably the best. Often some of the warehouses are not in use when the others are. In such cases the supply of cold air can be shut off in those warehouses."

SMALL PLANTS

Mr. Edwin Smith, assistant to Mr. Ruddick: "There are certain fruit districts where tender small fruits are shipped during limited periods where it is not practical to establish large plants, as the overhead operating expense would be too great. The Washington Department of Agriculture has devised a simple system that is sufficient for such districts. I put up one of these in British Columbia, with satisfactory results. It cost to construct about \$2,500, not counting a few extras. The rooms have a capacity of about two carloads. Such a plant is all right for holding temperatures for short periods, but not for use as a cold storage."

Recent Bulletins

Recent circulars and bulletins that have reached The Canadian Horticulturist include Circular No. 172, issued by the Agricultural Experiment Station, Urbana, Illinois, entitled "The Blight of Apples, Pears, and Quinces." This bulletin is by Prof. P. S. Pickett, formerly of Ontario. The same Station has issued Circular No. 173 entitled "Onion Culture," by John W. Lloyd.

The Dominion Department of Agriculture is distributing a number of circulars for use at the fall exhibitions. These include three by the Dominion Horticulturist, W. T. Macoun, entitled "How to Make and Use Hot-beds and Cold Frames," "Protection of Fruit Trees from Mice and Rabbits, including the care of Injured Trees," and "Top Grafting."

The largest and heaviest apple ever grown in the world, says an English paper, has been raised this season in England. It is a Gloria Mundi, and was produced by the same grower who a few seasons ago raised the famous giant apple of the same variety, which measured 26 inches in circumference and weighed 27 ounces. Sent for sale in Covent Garden in October the 19th, 1909, it realized the astonishing price of £14 (\$70) by public auction, breaking all previous record. The new record breaker weighs no less than 32½ ounces. This wonderful apple was grown in an 11-inch flower pot, the tree producing six mammoth fruits at the same time. It was this very tree which bore the giant of 1909.

An unusually full description of the Codling-Moth is given in Bulletin No. 147 of the Iowa State College of Agriculture, Ames, Iowa. It is entitled "The Codling-Moth in Iowa." Bulletin 148, issued by the same college, is entitled "The Effect of Potato Treatments on Seed Vitality."

The Michigan Agricultural College, at East Lansing, Michigan, is distributing Bulletins 67, 68 and 69, entitled "Onion Culture on Muck Land," "Two Michigan Bean Diseases," and "Spray and Practice Outline for 1914."

Famous Queens Direct from Italy

Bees more beautiful, more gentle, more industrious, the best honey gatherers.
PRIZES—VI. Swiss Agricultural Exposition, Berne, 1895.

Swiss National Exposition, Geneva, 1896
Beekeeping Exhibition, Liege Belgium, 1896
Beekeeping Exhibition, Frankfurt, O. M. (Germany), 1907
Universal Exposition, St. Louis Mo., U.S.A., 1904.

The highest award.

Extra Breeding Queens, \$3.00; Selected, \$2.00; Fertilized, \$1.50. Lower prices per dozen or more Queens. Safe arrival guaranteed.

ANTHONY BIAGGI

PEDEVILLA, NEAR BELLINZONA ITALIAN SWITZERLAND

This country, politically, Switzerland Republic, lies geographically in Italy and possesses the best kind of Bees known.

Mention in writing—*The Canadian Horticulturist and Beekeeper*

THIS WASHER MUST PAY FOR ITSELF.

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse, but, I didn't know anything about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right," but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now, this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way. So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing the clothes. Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges, nor break buttons, the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight, too. Surely that is fair enough, isn't it?

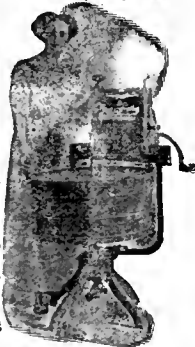
Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week 'till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me personally:

B. S. MORRIS, Mgr., 1900 Washer Co., 357 Yonge St., Toronto, Ont.



An Exhibit of Merit

Messrs. Ross & Son, Toronto Nurseries, in addition to their usual exhibit of nursery stock at the Toronto Exhibition, showed a number of fine specimens of the English Laurel, variegated Silver and Golden Hollies, English Ivies, variegated Japanese Euonymus, Retinosporas in variety, Specimen Boxwood, both pyramidal and globe, and different sized Bay Trees, Rhododendrons, and Japanese Maples. They are endeavoring to popularize these half-hardy broad-leaved evergreens, and to show how easy it is to decorate home grounds with clumps and single specimens of these beautiful plants. They can be lifted with ease before winter and stored in the cellar with a little earth thrown over the roots. In the spring they may again be planted out on the lawn or garden, where they are very effective on account of their novelty and beauty. They are splendid substitutes for palms in the sunrooms, halls or green-houses.

The Cupressus Lawsoniana, Triumph of Boskoop or Blue Cypress was much admired. It is hardy in Toronto, two fine specimens having been growing for years in the St. Clair district.

Ross & Son, besides the usual line of ornamental trees and shrubs, have many other evergreens, such as Magnolias, Kalmias, Deodar Cedars, Irish Yews, and Junipers. They invite intending planters to inspect their stock at the Nurseries, and will be pleased to mail their catalogue to any address or give information on any subject relating to Horticulture on application.—Ross & Son, 1167 Queen St. E., Toronto, Ontario.

Possible Western Outlet

Dr. J. W. Ross, Canadian Trade Agent, Shanghai, China

British Columbia fruit packers will do well to study the China market, for it has great possibilities of a demand for the products which they can supply. British jams and marmalade, United States tinned fruits, vegetables and preserves, and Australian jams have for years had a quite extensive sale in all the open ports of China, and the demand will surely increase.

In promoting this trade, the same points must be observed as those applying to condensed milk. In the case of jams, glass containers would have the best appearance. All labels must be attractive, and the word Canada or Canadian must always appear. Good articles of this class when put up in an attractive manner will always find a ready sale in the China market.

Packing Fruit for Exhibition

E. F. Palmer, Toronto, Ont., Assistant Provincial Horticulturist

It seems to be the general opinion of those unfamiliar with wrapping that it adds considerably to the cost of packing. As a matter of fact, the cost of paper for wrapping is almost saved by the weight of fruit displaced by the paper. Furthermore experienced packers can do as quick or even quicker work wrapping than without. Again, it is easier to secure the proper bulge with wrapping, as the firmness of the pack can be varied considerably from the middle of the pack to the ends without injuring the pack in any way. The principle of this has already been dealt with in "Bulge." Wrapping also allows more latitude in the style of pack. In fact, it is easier by far to pack wrapped apples

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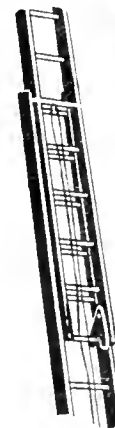
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AFTER JULY 1st

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Bees per pound . . . \$1.00
Nuclei per frame . . . \$1.00 each

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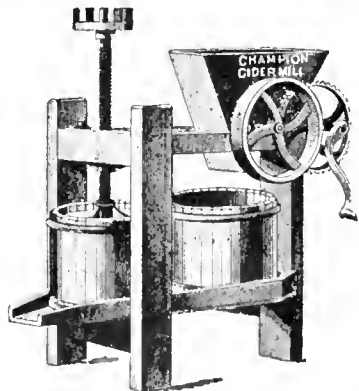
Extension Ladders are Light and Strong, Wire-trussed and have a Safe Lock.

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Large stock of all sizes for the Spring trade.

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WE ARE NOW BOOKING ORDERS

For Fall Planting, which is the best time to plant. My apple trees are grown from French Crab Seed, which is the hardiest and best for Orchard Planting; also a long list of leading varieties of Fruits and Ornamentals.

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Finest Apple Rooms in the Dominion for Export and Local Trade.

Special Rooms for All Kinds of Perishable Goods.

THE CANADA COLD STORAGE CO. Limited
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than unwrapped as any packer skilled in both methods will testify. The fruit stays where it is placed.

As to the benefit to the fruit of wrapping, there is no question. It prevents the rapid spread of disease, the fruit keeps longer, it is protected from outside influences, as sudden changes of temperature and excessive moisture. It tends to prevent the apples bruising one another, it makes an elastic but firm pack much less liable to shift than unwrapped fruit, and it gives a more finished appearance to the package. It presumes a high grade product so finding a readier sale and a higher price.

In wrapped fruit, the top of the box should be packed last, while in unwrapped fruit the top is packed first. Packing the top of wrapped fruit first is a poor method. It wastes time and should be discouraged.

PACKING FOR EXHIBITION.

Packing for exhibition is essentially the same as commercial packing in so far as the actual operation is concerned. Great care should be taken, however, to choose only apples that are as near perfect in regard to color and freedom from blemishes as it is possible to get them. A single wormy apple in a box is enough to disqualify that box in the eyes of most judges, if the competition is at all keen.

It is good practice to clip the stems of the top layer of apples so that the apples may be packed stem end up. They present a better appearance than if packed calyx-end up.

In competitions where more than one box is called for, have the same pack and the same number of apples to each box. In fact, have the boxes as nearly alike in every respect as possible. Uniformity counts many points in judging.

Before shipping your fruit to the exhibition, take every precaution to ensure its arrival in perfect condition. It is a good plan to line your boxes with corrugated paper, double wrap your fruit, and re-pack at the exhibition. It takes only a short train journey to loosen up what looks like a perfect pack. Needless to say the pack should be firm at judging time.

Above all things keep to the letter of the rules as given in the prize list. In close competitions judges often have to resort to technicalities to simplify their work, and if you don't agree with the judges' decision—don't kick. He has a thankless job at best.

Items of Interest

Philip J. Gabler, Cargo Inspector for Canada at Liverpool, reports in the Census and Statistics Monthly as follows. "It will be generally admitted that in these days of keen competition continued improvement is necessary if we are to hold our own or keep ahead, and I would like to call the attention of Canadian packers to the fact that the Western New York State people are making a big effort to capture the best of this market. Their fruit is of very good quality generally, and very well graded, and they go sometimes to the extent of what may be termed fancy packing in barrels (i.e., fancy paper lace for the face of the barrels and a pad at top and bottom.) These apples easily command top prices."

An association with 50,000 or 100,000 barrels to sell can command a better price than an association with 2,000 to 8,000 barrels, because the cost of making sales in large bulk is much less than the cost of making a number of sales in small bulk.



SMALL FRUIT PLANTS

Gooseberries, Josselyn! Josselyn!! Red Jacket, Downing, Pearl, Houghton.—Currants, Perfection! Perfection!! Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Black Victoria, Boe-coop.—Raspberries, Herbert! Herbert!! Herbert!!! Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry. — Garden Roots, Asparagus, Rhubarb. Write for Catalogue.

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True to Name—Free From Disease

Mr. Fruit Grower, you are looking for the best Apple, Pear, Peach, Plum, Cherry and Quince Trees you can Buy.

Kelly Trees are sold at Growers' Prices—shipped direct from our own nurseries in Dansville and guaranteed sturdy, free from disease and True to Name.

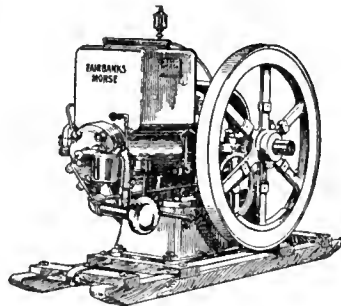
For 28 years we have had the name of knowing how to grow trees right. From seedling to freight car we watch our own trees personally and know we are shipping just what you order. We have an up-to-date nursery plant and can ship all orders promptly, as well as grow and ship at a low cost. We give you every advantage on price. Plant apples this fall.

Write for our catalog TO DAY, and get our prices.

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You'll never regret planting Kelly Trees

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Easy to operate, simply and durably made, reliable at all times and will run on cheap fuels.

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Canada's Departmental House for Mechanical Goods

Should Fruit Inspectors Give Out Certificates

SHOULD the Dominion fruit inspectors, after they have inspected packages of fruit, give the growers a copy of their report concerning it? This point was raised at the Dominion Fruit Conference held in Grimsby, Ont., September 2 to 4, and led to a lively discussion. It resulted finally in the conference adopting a resolution favoring the idea if the Government can arrange to do so without injury to the work of the fruit inspectors.

When the point was first raised Dominion Fruit Commissioner D. Johnson explained how the work of inspection is conducted. He said that Ontario has been divided into districts, but the districts are so large it is impossible for the fruit inspectors to get around as often as the growers seem to desire. This is because there are not enough inspectors.

Mr. P. W. Hodgetts, of Toronto, said that he had heard the suggestion made that if necessary fewer inspectors should be engaged permanently in order that more inspectors might be engaged temporarily during the shipping season.

Fruit Inspector C. W. Baxter pointed out that where a buyer was handling a lot of different packs the inspector might inspect only one pack. Were he to give a certificate for one pack it might not be representative of the other packs, and yet the dealer might use it to help to sell the other packs also. Some method of guarding this point would have to be found.

Mr. M. Snetsinger, of Thornbury, Ont., did not think this difficulty was likely to be serious, as each packer has to be responsible for all the packs he sells.

Mr. A. E. McMahon, Aylesford, N.S., pointed out that the inspectors have to re-

port to the Department of Agriculture on each lot of fruit they inspect. He thought that it was only fair that the packer should be given a copy of that report.

Mr. Elmer Lick, Oshawa, Ont., thought that it would be a good idea if an association or packer could get a report covering a lot of inspections showing them to have been packing a consistently uniform and high quality pack.

Prof. M. Cumming, Deputy Minister of Agriculture for Nova Scotia, was in favor of copies of the inspector's reports being given to the packers, although there was a danger that the reports might be used as a guarantee of quality to help sell other fruit and thus lead possibly to law suits. This would have to be guarded against.

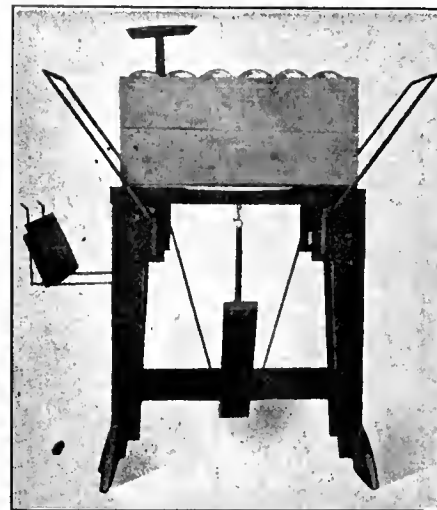
Mr. P. W. Hodgetts pointed out that Ontario fruit sent to the west sometimes deteriorates in the dealers' hand. He has it inspected there, and in some cases has used the inspector's reports when applying for rebates from the packers. If the packers had a copy of the inspector's report as obtained at their end of the line, it would in some cases serve to protect them. He felt that it would not be long before the trade would recognize that the reports were in no sense a guarantee of quality, but merely a report on conditions at the time of the inspector's visits.

Mr. A. E. Dewar, Charlottetown, P.E.I., was afraid that after the inspector left, dishonest packers would take advantage of the inspector's reports to use them in selling inferior lots of fruit that the inspector had not inspected.

Mr. A. W. Peart, Burlington, Ont., favored the suggestion that the inspectors should give the packers a copy of their reports

Quick and Easy

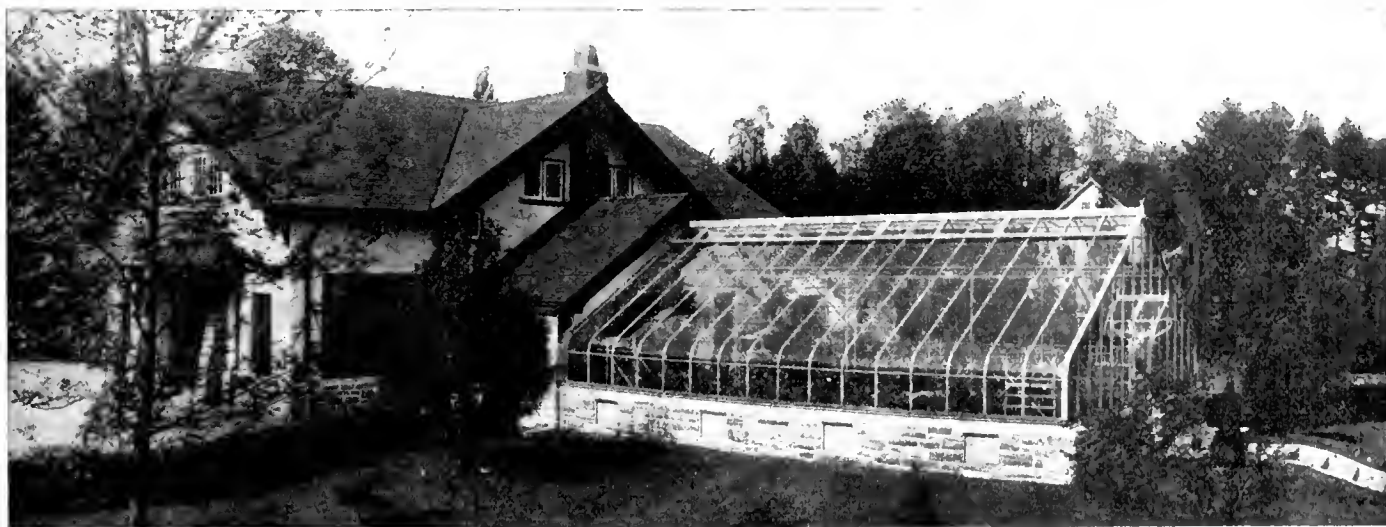
That is the way the DAISY APPLE BOX PRESS works. A simple pressure of the foot brings the arms up over the ends of the box, automatically draws them down and holds them in place while being nailed. The fastest and only automatic press on the market.



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If you pack apples in boxes, this machine will be a great convenience to you and will save you time and money. Write for price to

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Associating the Garage and Greenhouse

TWO pleasure givers—two essentials—the auto and the greenhouse. Adding so much to the enjoyment of country living, the associating of them in thought seems but natural. To carry the thought still farther: The garage and the greenhouse are a logical link-up. Logical and economical. You save the cost on one gable of the work room. The one boiler will heat them both, to the economy of both. There

are, however, certain important factors that must be considered for the safety and efficiency of each. We won't go into them here, but will gladly advise you about them. If you would like our suggestions concerning the design and layout of the "link-up," we will gladly arrange to make them for you. Or should you employ an architect, we would be glad to cooperate with him. In any event, let's talk the question over.

U-BAR GREENHOUSES
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are unequalled for bowl or bed culture.

The Carter catalogue and handbook—"Bulbs"—illustrates and describes the choicest varieties of Tulips, Narcissus, Daffodils, Crocus, and many others. It lists all well-known favorites and many exclusive kinds not to be had elsewhere. Complimentary copy on request. Write for it to-day.

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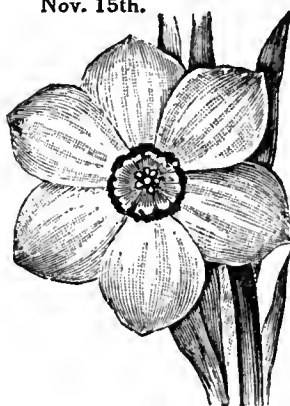
We offer a complete assortment of Bulbs for Winter Flowering in the house and Spring Flowering in the garden—Planting time Oct. 1st to Nov. 15th.

PRICES AT HAMILTON	Each	Doz.	100
Crocus, in 4 Colors	\$.02	\$.15	\$.75
Freezias, Refracta Alba, large	.03	.25	1.50
Lillies, Calla, White, large	.20	1.80	
Lillies, Chinese Sacred, large	.10	.80	
Hyacinths, Roman, 4 Colors	.05	.50	3.75
Hyacinths, Dutch, 4 Colors	.06	.55	4.00
Narcissus, Paper White Grandiflora	.05	.30	2.00
Narcissus, Single, 6 varieties	.04	.30	1.75
Narcissus, Double, 4 varieties	.04	.30	2.00
Scilla Siberica	.03	.25	1.50
Snowdrops, Single	.02	.15	1.00
Tulips, Single, named, 6 colors	.04	.30	1.75
Tulips, Single, choice mixed	.03	.25	1.25
Tulips, Single, good mixed	.03	.20	1.00
Tulips, Double, named, 6 colors	.04	.35	2.00
Tulips, Double, choice mixed	.04	.30	1.50
Tulips, Double, good mixed	.03	.25	1.25

The TANGO Tulip, a beautiful Tango colored variety, with very sweet perfume, Doz. 35, 100 for \$2.50. Where Bulbs are to be mailed (parcel post) add one-fifth to amount of order for postage—where there are Express Offices, Express is cheaper than mail on all orders amounting to \$2.50 and over.

FREE—Write for our 28 page Illustrated Catalogue of Bulbs, Plants, Seeds, Poultry Supplies Etc.

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SEED MERCHANTS Established 1850 HAMILTON, ONT.



SINGLE NARCISSUS

Mr. McMahon favored every packer being registered. It would help the inspector in the performance of their duties and looking after some of the packers.

Mr. Max Smith, Burlington, Ont., claimed that an honest packer does not need a inspector's certificate. Dishonest packers are the men who need certificates to help them make sales. Dealers in the west would require that all shipments should be accompanied by certificates. To start giving certificates would make it necessary to employ an army of inspectors.

Lorne Carey, of the Wentworth Fruit Growers' Association, told of a carload of apples that had been shipped west. The retailer wired back on its receipt that it was unsaleable. The fruit inspector was called in and reported that the fruit was first-class. In the course of the trouble the apples became frozen and had to be sold at a great loss. Had the shippers had a inspector's certificate in the first place, it would have been a great protection.

Senator E. D. Smith, of Winona, Ont., was strongly in favor of the granting of inspectors' certificates. If necessary a nominal charge per barrel might be imposed in connection with each inspection to deter an undue number of applications for inspection being made. The granting of certificates would tend to help young growers whose pack was unknown to the trade to gain a quicker acceptance for their fruit.

Rev. Mr. Dickson, Rectory Hill, Quebec, wanted to know if the first inspection would be final.

Mr. Lick replied that this would be impossible, as it would lead to many attempts at fraud. Fruit might deteriorate and require to be reinspected.

The matter was referred to the committee on resolutions, which later brought in a report which was adopted recommending the Government to issue the certificates if a satisfactory method of doing so could be devised.

I know of claims in Ontario that have been standing against railway companies for five years, and for amounts as great as \$1,500. One of the powers that should be given to the Dominion Railway Commission is the right to adjudicate cases that have been standing for over three months.—Geo. E. McIntosh, Forest, Ont., Traffic Expert for the Ontario Fruit Growers' Association.

Mr. Charles H. Williams, B.S.A., who has for the past two years been resident horticulturist at Charlottetown, in connection with the Dominion Department of Agriculture, has been promoted to the position of Assistant Superintendent of the Dominion Experimental Farm at Nappan, N. S.



Branch Warehouses:
Sudbury, North Bay,
Cobalt, Cochrane and
Porcupine

Send for
Shipping Stamp

Fruit and Vegetables Solicited

WE GET YOU BEST PRICES

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

H. PETERS
88 Front St. East, Toronto

References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.



Quebec Fruit Growers Meet

THE summer meeting of the Pomological Society of the province of Quebec was held at Abbotsford, September 9-10th, in conjunction with the exhibition of the Abbotsford Fruit Growers' Association.

The programme included an introductory address by the President, Prof. T. G. Bunting, of Macdonald College, and an address of welcome by J. M. Fisk, of Abbotsford; Mr. C. E. Petch, of the Experimental Farm, Ottawa, spoke on "New Sprays," Mr. Robt. Brodie, of Montreal, on "An Amateur Rose Garden," Mr. M. B. Davis, of the Experimental Farm, Ottawa, on "Cooperation," and Rev. Father Leopold, of La Trappe, on "Cherries."

Among those present were delegates from Quebec, who had been in attendance at the Dominion Fruit Conference held in Grimsby, Ontario, shortly before. Rev. H. Dickson, of Rectory Hill, presented a report of the proceedings at the conference at the Thursday morning session. This was followed by an address entitled "Insects of the Orchard," by Prof. Lochhead, of Macdonald College, and a talk on "The Packing of Fruit," by Mr. P. J. Carey, of Toronto, representing the Dominion Fruit Division.

A keen interest was taken in the papers which were followed by animated discussions. Much interest is now being taken in orchard pests of all kinds and means of control, and Prof. Lochhead's and Mr. Petch's papers were specially interesting.

During the past four years there has been a great improvement in the general care of the orchards in regard to spraying and as marked results are now showing in these well-sprayed orchards the growers are keen for information. The five demonstration orchards of the province have fine crops of beautiful fruit this year, and the influence of these is being felt in their respective districts. From general reports there will be a great increase in the number of sprayed orchards next year.

Much interest was taken in Mr. Carey's address on the packing of fruit, which had special reference to box packing. In the afternoon a practical demonstration in box packing was given by Mr. Carey. As yet the box has not been adopted to any extent in the province, but now the growers of the Fameuse and McIntosh are beginning to take to it as a package for these varieties.

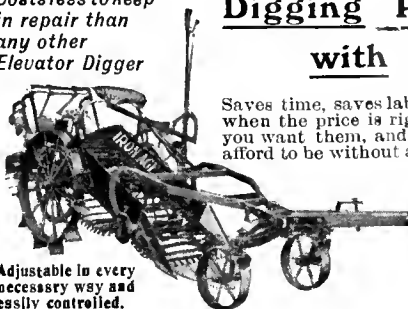
A new mechanical grading machine was in operation during the afternoon. It made a very favorable impression.

Between meetings a visit was paid to a neighboring orchard owned by Dr. C. W. Byers of Montreal. This orchard largely consists of Fameuse and McIntosh, and it is about eighteen years old. It is estimated that there will be twelve hundred barrels of these two varieties, and a finer, cleaner or better crop was never grown. The color and uniformity of the apples on the trees was particularly noted by the visitors. This orchard is considered one of the best in the province. The annual meeting of the society will be held at Macdonald College, December, 2nd and 3rd, 1914.

Bulletins and Reports

Recent bulletins and reports that have reached The Canadian Horticulturist include the following: "Fertilizers in Relation to Soils and Crop Production," by R. Harcourt, Professor of Chemistry, and A. L. Gibson, Demonstrator in Soils, of the Ontario Agricultural College. This is Bulletin

*Costs less to keep
in repair than
any other
Elevator Digger*



*Adjustable in every
necessary way and
easily controlled.*

Digging Potatoes

with an

IRON AGE

Saves time, saves labor, gets all of the potatoes, helps you get to an early market when the price is right. Digs, separates thoroughly, drops the potatoes where you want them, and in most cases fairly well sorted. The question is: Can you afford to be without a digger?

Four styles from which to choose the one that suits your conditions best. You pay for and your horses draw only what you need. We have been making Diggers 10 years and know what to build for this work. Our Booklet "D" tells the whole story in an understandable way. May we send it?

The Bateman-Wilkinson Co., Limited
460 Symington Ave. - Toronto, Ont.

This Beautiful Tea Set **FREE** of Bavarian China



This beautiful Set contains 40 pieces. 1 dozen cups, dozen saucers, dozen plates, 2 cake plates, 1 cream jug

and a dreg bowl. The set is Bavarian China, nicely decorated and the shapes are the very latest.

A large order placed with a local wholesale house enables us to offer these sets to you in return for a very small amount of work on your part and without a cent's expense.

If you will send us 8 new yearly subscriptions to The Canadian Horticulturist at 60c. each, or 5 new two year subscriptions at \$1.00 each, we will send you one of these sets at once.

This is a wonderful opportunity for you to get a Tea Set **FREE**. Write us immediately.

THE HORTICULTURAL PUBLISHING CO.
PETERBORO, ONT. LTD.



Costs You Nothing

to try this wonderful new Aladdin coal oil mantle lamp 10 days right in your own home. You don't need to send us a cent in advance, and if you are not perfectly satisfied, you may return it at our expense.

Twice the Light on Half the Oil

Recent tests by noted scientists at 14 leading Universities, prove the Aladdin gives more than twice the light and burns less than half as much oil as the best round wick open flame lamps on the market. Thus the Aladdin will pay for itself many times over in oil saved, to say nothing of the increased quantity and quality of pure white light it produces. A style for every need.

Over Three Million

people now enjoy the light of the Aladdin and every mail brings hundreds of enthusiastic letters from satisfied users endorsing it as the most wonderful light they have ever seen. Such comments as "You have solved the problem of rural home lighting"; "I could not think of parting with my Aladdin"; "The grandest thing on earth"; "You could not buy it back at any price"; "Beats any light I have ever seen"; "A blessing to any household"; "It is the acme of perfection"; "Better than I ever dreamed possible"; "Makes my light look like a tallow dip"; etc., etc., pour into our office every day. **Good Housekeeping Institute**, New York, tested and approved the Aladdin.

We Will Give \$1000

to the person who shows us an oil lamp equal to the Aladdin (details of this Reward Offer given in our circular which will be sent you). Would we dare invite such comparison with all other lights if there were any doubt about the superiority of the Aladdin?

Get One FREE

We want one user in each locality to advertise and recommend the Aladdin. To that person we have a special introductory offer under which one lamp is given free. Just drop us a postal and we will send you full particulars about our great 10 Day Free Trial Offer, and tell you how you can get one free.

THE MANTLE LAMP COMPANY
409 Aladdin Bldg., Montreal and Winnipeg, Canada

Largest Manufacturers and Distributors of Coal Oil Mantle Lamps in the World.

Men With Rigs Make Big Money

delivering Aladdin lamps. No previous experience necessary. One farmer who had never sold anything in his life made over \$500.00 in six weeks. Another says: "I disposed of 34 lamps out of 31 calls.

No Money Required We furnish capital to reliable men to get started. Ask for our distributor's Easy-System-of-Delivery plan quick, before territory is taken.

When writing advertisers, say you saw their advertisement in
THE CANADIAN HORTICULTURIST

223. It is being issued by the Ontario Department of Agriculture, Toronto.

"Plant Lice on Currant and Gooseberry Bushes," is the title of a circular by Edith M. Patch, being issued by the University of Maine, Orono, Maine, which is also distributing Bulletin No. 227, entitled, "Powdery Scab on Potatoes." The author of the bulletin is Dr. W. J. Morse.

Apple Crop Prospects

The present season, so far as production is concerned, and speaking broadly for the whole Dominion, is a most satisfactory one. The crop is large and the fruit is clean and of good size. Such a condition is exceptional, and if the means of distributing and marketing were normal, the growers would unquestionably reap abundant returns.

The foreign market, however, at the present time is greatly demoralized. In practically every section of the country the growers are exceedingly pessimistic regarding the ultimate distribution of their fruit in a satisfactory manner. This feeling is particularly marked among independent growers, who have in previous years relied upon the itinerant buyers to purchase their fruit. Many of these buyers are not operating this season, and even in cases where they have quoted prices, their offers are far from alluring. The consequence is that growers are practically at a loss as to any means of selling their crop. Many of them have had no experience in marketing, having formerly sold their fruit on the trees or packed in the orchard. Cooperative associations are not so seriously affected. Being groups of growers under capable management and with experience in disposing of previous crops, most of the associations have established connections upon which they can place some reliance in the present season. The average over the whole Dominion for early apples is seventy-eight per cent., for fall apples seventy-eight per cent., and for winter apples seventy-four per cent. This gives a total crop of seventy-six per cent., which is an increase of twenty-eight per cent. over that of 1913.

HARVESTING

On account of the very exceptional conditions which are at present existing throughout the world, there are certain features which Canadian fruit producers should keep in mind when harvesting their crop. There is a general laxity on the part of consumers in making purchases, and the demand for any inferior fruit from present indications, will be slight. It is therefore desirable that only the better grades should be packed and shipped, at least until a more equable state of affairs is reached. There should be a satisfactory home market for the better grades, and the growers would be wise to limit their shipments to such grades and hold the lower grades for later sales. The main thing to bear in mind is that, just as long as the demand for fruit is limited, it should be supplied only by the better grades and every barrel of No. 2 or No. 3 apples that is placed on the market interferes to just that extent with the sale of higher grades.

FOREIGN CONDITIONS

The crop in Great Britain is larger than was anticipated early in the season, and the markets are well supplied. Large quantities of bananas and pineapples, originally intended for European points, have been diverted to British markets, with the result that the public are being well supplied at low prices. Local apples, pears, and plums are all excellent crops.—Dominion Fruit Crop Report.

FRUIT MACHINERY CO.

INGERSOLL, ONT.

Manufacturers of Fruit Sprayers

and a complete line of

Apple Evaporating Machinery

Our complete **POWER SYSTEMS** for evaporating, when installed by our experienced millwrights are the most practical, sanitary and labor saving to be found anywhere. Our prices and terms always reasonable.

Write for Illustrated Catalogue

FREE LAND

FOR THE SETTLER IN

NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

H. A. MACDONELL

Director of Colonization

Parliament Buildings., TORONTO

HON. JAS. S. DUFF

Minister of Agriculture

Parliament Bldgs., Toronto

GLASS GARDENS

Canadians will be glad to learn that it is possible to get Glass Gardens entirely made in Canada by a Canadian Company—Glass Garden Builders, Limited.

The Company will erect private or commercial greenhouses of any type or size with full equipment of any sort.

The Company's staff includes Mr. Isaac Cassidy, formerly of Lord & Burnham Co., Mr. R. Derbyshire, formerly Canadian Manager of the Parkes Construction Co. Mr. W. J. Keens, of Toronto, is President, Dr. J. M. Baldwin, late Vice-President of Toronto Horticultural Society, Vice-President, and Mr. C. M. Baldwin, Secretary-Treasurer.

It has already under construction two large houses for J. H. Dunlop, of Richmond Hill, and several private gardens in Toronto.

Further particulars or plans and estimates will be gladly furnished to anyone interested.

Glass Garden Builders, Ltd.

43 Scott St., TORONTO

Market Prospects

**P. W. Hodgetts, Sec'y, Ontario Fruit Growers' Association,
Toronto, Ont.**

The apple markets still continue very slow and prospects are not brightening as yet. It is felt that there may be a fair market in Great Britain for shipments going forward up to the first of October. Liverpool advises us that only about half of the usual quantity will be required, and that largely of the No. 1 grade. The people who are suffering most from the war are those who consume the lower grades of apples.

Sales of apples have been made for the western market at prices all the way from \$2.00 to \$2.70 per barrel f.o.b., depending on the percentage of Spys in the shipment. Competition is very severe, many salesmen being in the west and some unfair tactics have been adopted. One of our Ontario Associations in a circular issued to the trade, stated that they are continuing to use the large Ontario barrel, but that some Ontario Associations and Nova Scotia are using the small barrel. The fact is that not an association nor dealer in Ontario is using the small or what is generally known as the Nova Scotia barrel.

Horticultural Exhibition

In spite of the war and the change in conditions created by it, the Ontario Horticultural Exhibition will be held this year as usual. For a while it looked as though the exhibition would have to be abandoned. Certain financial support that the Association has always received, it was found could not be counted upon. Hearing of the situation the exhibitors quickly rallied to the support of the directors with the result that at a meeting of the directors held on Friday, September 18th, it was decided unanimously to hold the exhibition as usual. The dates selected were November 9th to 14th.

This year's exhibition may surpass all previous ones. Desiring to show their patriotism, both to their country and to the exhibition, the exhibitors have offered to make exhibits without drawing any prize money. In consequence no prizes will be offered. Sufficient promises have already been made from the flower, fruit, honey and vegetable sections to ensure a splendid exhibition. The city of Toronto has agreed to give the use of their Horticultural Building on the Exhibition Grounds, heated and lighted, free of cost. The entire gate receipts will be given over to the Red Cross Society, which will look after the advertising and ticket selling, the funds going through this channel to aid in caring for the sick and wounded in the war. Not a cent of the gate receipts will be taken for the expenses, the growers receiving only the advertising for their expense and trouble of putting up an exhibit. The names of all growers will be placed on the fruit or other produce which they send in, and a sale will be held of all the goods on exhibit on the last day of the show. Exhibits on these terms are invited.

Market Fruit Carefully

Only a little extra time and skill are required to market plums and apples properly. If they reach the market poorly graded and bruised, or in dirty, broken packages, they cannot command good prices. Clean, neat packages are necessary to show fruit's advantageously.

Pick with care. Don't wait for plums to soften or apples to become mealy. They should be well colored and large, but still

Ontario Horticultural Exhibition

EXHIBITION GROUNDS

TORONTO, ONTARIO

November 10, 11, 12, 13, 14

Fruit Flowers Honey Vegetables

This year's Exhibition promises to be just as large and splendid as the many successful Exhibitions of former years.

The Growers in each section have consented to exhibit the best in their possession, and to forego the acceptance of prize money, which will enable the giving of the **entire proceeds, including the gate receipts, to the**

Red Cross Society

Entries should be made at once with the Secretary.

P. W. HODGETTS, Secretary

Parliament Buildings, TORONTO

WM. COUSE

President

FOR SALE AND WANTED

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 30 cents, strictly cash in advance.

ALL KINDS OF FARMS.—Fruit farms a specialty—W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS.—Before buying it will pay you to consult me. I make a specialty of fruit and grain farms.—Melvin Gayman & Co., St. Catharines.

ASK DAWSON. He knows.

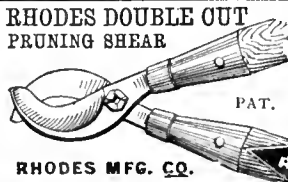
IF YOU WANT to sell a farm consult me.

IF YOU WANT to buy a farm consult me.

I HAVE some of the best Fruit, Stock, Grain and Dairy Farms on my list at right prices. H. W. Dawson, Ninety Colborne St., Toronto.

WANTED—Clean, bright beeswax and fancy comb honey.—R. N. Smeall, 95 4th Ave., Vancouver, Montreal, Que.

RHODES DOUBLE OUT PRUNING SHEAR



Cuts from both sides of limb and does not bruise the bark. We pay Express charges on all orders. Write for circular and prices.

RHODES MFG. CO.

536 S. Division Ave. GRAND RAPIDS, MICH.

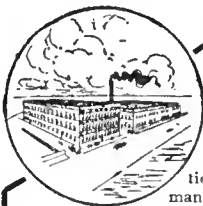
FRUIT FARM FOR SALE

Complete in every way and situated on outskirts of growing county town in Ontario. Comprises 28 acres, planted with young apple, peach and pear trees, and bearing small fruits, etc. Greenhouse, 25 x 50 feet, also steam bottling and preserving outfit. Complete water system and natural gas.

Houses and barns in first-class condition, with newly erected fruit-packing barn having cement lower story and storage cellar. Very valuable gravel-pit next to road.

Write now, before this is snapped up, and get full particulars from the owners.

BOX 10. CANADIAN HORTICULTURIST



FACTORY CLEARANCE SALE...

Unusual business conditions are forcing large manufacturers to sacrifice stocks in order to keep their mills running. To the alert buyer this represents an unprecedented opportunity to save money. These chances come only once in a long time—when they do come it pays to act quick.

WALL BOARD

Wall Board takes the place of both lath and plaster. It gives a finished wall without further decorating. Anybody can put it on. Now selling at a special price. **SAMPLE FREE.**

21 Cents Square Foot

ROOFING

Lowest prices on record. Genuine Asphalt Felt Roofing 100 per cent. saturation, contains no tar or paper. In full rolls of 108 square feet with nails and cement. **SAMPLE FREE.**

79 Cents Roll 108 Sq. Ft.

BUILDING PAPER

A great snap at this price. Full measure rolls 400 sq. feet in each. Use it plentifully at this price. **SAMPLE FREE.**

35 Cents Roll 400 Sq. Ft.

The Halliday Company Limited.
FORMERLY STANLEY MILLS & CO.
HAMILTON ESTAB. 1888 CANADA

firm. A soft plum will not stay up in the market, and neither will the price. Fall apples may be picked when full size is reached without regard to color, or the color may be allowed to develop if desired, but the fruit must not be allowed to soften or drop if it is to be handled profitably.

Discard all bruised, stung, or mis-shapen plums and grade as No. 1 those of good color, and as No. 2 those inferior in coloring. Sort according to size so that every package is uniform throughout in size of plums which it contains. The same suggestions apply to apples, especial care being taken to discard those that are wormy, scabby, bruised or stung. Uniformity in color and size of fruit and size of package, combined with neatness and cleanliness of package, will add greatly to the market price of fruit.

Eastern Annapolis Valley

Eunice Buchanan

We now find that the apple crop of the Annapolis Valley is not as large as was at first expected; probably the United Fruit Companies will handle about seven hundred thousand, and a liberal estimate of the Valley yield would be eight hundred thousand packed out of nine hundred thousand barrels.

Golden Russets have a full crop, while Starks seem to be generally scarce. Where the fruit has been sprayed it is very clean, but spot has developed in unsprayed orchards and there is likely to be fifteen to twenty per cent of spotted fruit. At first it was thought that there were no aphids worth mentioning, but now the damage by these insects is noticeable.

Cherries have been plentiful, and plums promise to be good; this year the growers are thinning them. Currants were eight cents to eleven cents a quart. Strawberries and raspberries have been scarce owing to the effects of frost and gall-root on the latter. Blueberries have not been less than eight cents a quart. Tomatoes and other things are late.

The price of barrels is twenty-six cents to twenty-eight cents delivered with time until fall for payment. Some barrels have been sold for twenty-five cents cash.

Mr. George Saunders, entomologist of the Bridgetown Dominion Experimental Station, has succeeded with experiments which indicate great cheapening in the cost of arsenical sprays; these experiments will shortly be made public. Mr. Saunders finds that powdered arsenates have not the adhering qualities of the pastes.

Of course the thing uppermost in the minds of the farmers is the war, and its effect on the apple market and harvest. Several men are holding themselves in readiness to leave the Valley should the militia or volunteer regiments call upon them, some have already gone. However, the apple companies are hoping to send fruit to England and to receive fair prices, also they are sending men to open up new markets in western Canada, South America and Cuba. Much depends on the shipping rates and increased marine insurance.

Items of Importance

It is reported that the Dominion Government is arranging to conduct an energetic advertising campaign in the leading consuming centres of Canada with the object of aiding apple growers to market this year's crop to the best possible advantage.

Canadian Trade Commissioners resident in the United Kingdom as the result of a special enquiry, report that so far there have been no indications that the requirements of the United Kingdom for canned fruit and vegetables will be greater

this year on account of the war than in ordinary years. It is not anticipated that the army and navy will purchase any considerable quantity of these goods.

According to investigations conducted by the United States Department of Agriculture it is estimated that the commercial apple crop of 1914 will be much larger than that of last year, but not so great by several million barrels as in 1912. A total production of 220,000,000 bushels is forecasted.

CHOICE SELECTED BULBS

Tulips, mixed, single or double 75c. per hundred; separate colors \$1.00 per hundred; Daffodils, single or double, 25c. doz.; \$1.75 per hundred. Mixed Hyacinths, 40c. doz.; \$2.75 per hundred. Mixed Hyacinths, 50c. doz.; \$3.50 per hundred. Order of \$2.00 and up sent free. Address—

W. W. WALKER

108 St. Paul Street - St. Catharines, Ont.

SKINNER THE RAIN SYSTEM MACHINE

OF IRRIGATION TRADE MARK

Write for six books on indoor and outdoor irrigation.

THE SKINNER IRRIGATION CO. DEPT. R., TROY, OHIO

Protect Your Fruit

BY USING

WARNER'S

APPLE BARREL PAD

It costs LITTLE and PAYS BIG

Manufactured by

ROSSELL B. WARNER, INWOOD, ONT.

Ploughs—Wilkinson

TRADE MARK

REGISTERED

U.S.S. Soft Centre Steel Moldboards, highly tempered and guaranteed to clean in any soil. Steel beams, steel land sides and high carbon steel coulters. Clevises can be used either stiff or swing. Each plough is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plough. Shares of all widths—specials for stony or clay land. The plough shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. Ask for catalogue.

The Bateman - Wilkinson Co., Limited

461 Symington Ave., Toronto Canada.

No. 3

Sodor General Purpose Plough. 25 styles to choose from.



GINSENG

True Canadian Nursery Stock for Fall Planting. 1,000 Stratified Seeds \$3.00. 1,000 one year old roots \$20.00. 1,000 two year old roots \$40.00. Write us for full particulars. I. E. YORK & CO. - WATERFORD, ONT.

LANARK GINSENG

Fortune awaits any man who will give time and attention to the growing of Ginseng. We have made a complete success of it and are ready to point the way to others. The time to prepare the ground is now, the time to plant is September and October.

Lanark Ginseng Seed is noted for its strong germinating qualities.

Lanark Ginseng Roots are sure growers and great producers.

Don't fail to make investigation of this highly profitable industry. Write to the Secretary and he will tell you all about it.

Address C. M. FORBES

Sec. Lanark Ginseng Garden Co.

LANARK, ONT.

The Canadian Horticulturist

Vol. XXXVII

NOVEMBER, 1914

No. 11

Choosing Varieties of Apples for British Columbia*

R. M. Winslow, Victoria, B. C., Provincial Horticulturist for British Columbia

THE commercial apple industry of British Columbia is a development of the last decade. The census of 1890 showed about six thousand acres of fruit in the province, and the census of 1900 showed an increase to only eight thousand acres. At the time of the 1910 census, however, the acreage had increased to thirty-three thousand six hundred and six, and the Provincial Government's Agricultural Survey of 1913 showed this further increased to thirty-eight thousand one hundred and ninety-six acres. The development was, therefore, a rapid one, following a period of inertia. The new development is largely in the interior. In 1900, interior districts had only about one thousand acres and now have thirty thousand acres; while in the coast sections, in the same period, the acreage has increased only about one thousand acres. In fact, the seat of the industry was almost entirely changed, for our interior districts are very different from the coast sections.

The great demand for information on varieties of apples to plant came largely, therefore, from these new interior areas, which were almost entirely lacking in old apple orchards; even further, the interior sections, looking to the Canadian prairies for their markets were

without information as to what those markets desired. The situation has, therefore, thrown a great responsibility on the Provincial Government's Department of Agriculture, which had been active in promoting the fruit industry and was then called on for technical information on varieties and on cultural methods.

Much of the planting had already been done when I came to the province as provincial horticulturist in the spring of 1909, but there was still a large demand for information and the demand continued strong until two years ago. With so little local information to draw upon, it was necessary to secure the most reliable information from other districts of similar character; we were fortunate in having weather records for considerable periods for typical points in many of our new districts, and with these in hand, we set out to compare climatic conditions with already successful fruit districts.

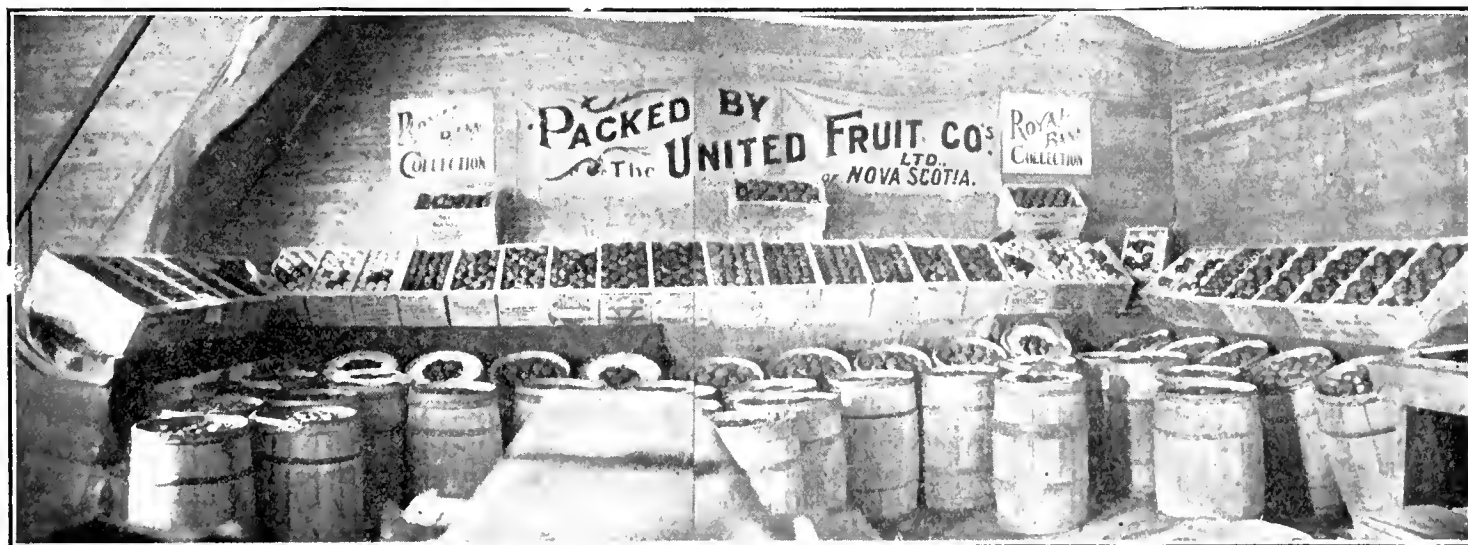
Comparisons of climate, as to precipitation, are simple, but as to temperatures the matter is hedged with difficulties. In this respect we found the method of utilizing temperature records worked out by the U.S. Biological Survey of the greatest value. Their investigations show the marked relation between the character of the growth period and the vegetation. Knowing that

all the principal commercial varieties of apples had distinct climatic preferences, the problem was to determine what they were.

The most important temperature conditions influencing the success of any variety of apples are as follow: First, the length of the growing season: While this is usually gauged from the length of season between killing frosts, the more exact way is to determine the period during which the mean temperature is over forty-three degrees F. This period for Hood River, for instance, averages two hundred and forty days, from March 17th to November 12th; and for Vancouver, B.C., it is two hundred and thirty days from March 25th to November 12th. The growing season in the various agricultural districts of British Columbia is usually between one hundred and seventy-five and two hundred and forty days.

The second consideration is the number of heat units. The amount of warmth as well as the growing season is important. The sum total of heat during the season is expressed in heat units, and a heat unit is taken to be one degree F. for one day for each day of the growing season. In this way, the total heat units for the growing season are determined. Hood River has an average of 15,315 heat units; Vancouver, B.C., has 12,667. The total heat units vary wide-

*Extracts from an address delivered before the Pacific Coast Nurserymen's Association, at the twelfth annual meeting held at Vancouver, B.C., June 16th to 18th, 1914.



During the Past Two Years the Fruit Growers of Nova Scotia Have Built Up a Splendid Reputation For Their Fruit, on Both the Home and Foreign Markets, Through the Work of their Big Fruit Company. The Illustration Shows Some of Their Fruit Ready for Market.



A Well Loaded Pear Tree

This Souvenir d'Congress pear tree on the farm of W. Palmer, Victoria, B.C., was so heavily loaded, the boughs had to be propped up to prevent breakage.

ly in British Columbia horticultural districts, but are usually between ten thousand and thirteen thousand.

Also important is the average temperature at the height of the growing season. Where the average temperature for the hottest six weeks is below sixty-two degrees F., sweet corn and tomatoes are ripened with difficulty; where the temperature averages sixty-six degrees F. for the same period, these same crops are grown in large commercial areas.

Having collected such data for all the principal apple growing areas on the continent, but especially those of the Pacific North-west, we set out to determine the range of particular varieties, especially the Yellow Newtown, Spitzenberg, Winesap, Jonathan, Wagener, McIntosh and Northern Spy, which varieties seem to suit our markets and are among the most popular of boxed apples.

The Yellow Newtown is notably a variety of limited adaptabilities. We found that Hood River, Rogue River, and the Albemarle country of West Virginia, in which areas this variety reaches its greatest perfection, have a growing season of two hundred and forty to two hundred and seventy days, with a total number of heat units of from thirteen thousand seven hundred and fifty to fifteen thousand seven hundred, and a temperature over the six hottest weeks of sixty-seven decimal five to seventy decimal seven degrees F., all of these, furthermore, are humid areas.

The districts with most nearly similar conditions to British Columbia are still very far from having the same conditions. We, therefore, counselled against heavy plantings of Yellow Newtown, and actual experience has since confirmed our opinion.

A similar investigation of the Spitzenberg, and other sectional varieties, showed that it required somewhat similar climatic conditions, save that it is doing well in some western irrigated districts with similar temperatures. In districts, such as Spokane, with two hundred and sixteen growing days twelve thousand six hundred and twenty heat units, and a temperature for the six hottest weeks of sixty-eight decimal six degrees F., the trees are not so productive, the fruit is not so large, nor so well colored, nor of such high quality. Our principal interior districts, which have temperatures much like that of Spokane, are finding similar results, and these results have justified our expectations.

The common or old Winesap is one of the most popular of western apples and has been widely favored in British Columbia on that account. We found, however, that it apparently requires a growing season of around two hundred and twenty-five days, a total of not less than thirteen thousand four hundred heat units, and temperatures for the six hottest weeks of seventy to seventy-two degrees F. With shorter or cooler seasons, the fruit lacks in size, color and quality.

The most favorable recorded points in this province, such as Lower Okanagan Lake, with a growing season of about two hundred and three days, heat units eleven thousand seven hundred and seventy-five, and six hottest weeks' temperature of sixty-seven decimal three degrees F. are obviously lacking. The Kamloops district is much more nearly suitable, having an average of two hundred and fourteen growing days, twelve thousand six hundred and eighty-three heat units, and a six weeks' hottest temperature of sixty-nine decimal three degrees F. The Similkameen Valley, of which, unfortunately, we have no temperature records, but which is believed to have the longest and hottest growing season in the province, comes even nearer than Kamloops to meeting the requirements. We have accordingly advised fruit growers to avoid the Winesap, except for these hottest localities. In the last two years the Winesaps produced in various districts have borne out our expectations, and I believe that in the most favored districts mentioned the variety will succeed commercially. On our recommendations these districts have planted largely of it, and other districts have largely avoided it.

The Wagener has been much favored for planting in the interior of the province, largely because of early bearing and productiveness. Wagener requires apparently just about the very conditions found largely through our interior sections. It is the most largely planted variety in the interior next to Jonathan. In the cooler and less sunny districts, it is not doing as well as in more favored ones. Water core has given considerable difficulty, and its control by cultural methods is not yet attained. It seems well suited to the dry belt areas in which the Jonathan is succeeding, and I think will justify the large plantings which have been made.

The McIntosh Red is not so well known south of the line as in British Columbia. It is, as you know, of Canadian origin, though a very popular apple now in Vermont and in the Bitter Root Valley, Montana. In its native home it thrives excellently with a growing season of one hundred and ninety days, with eleven thousand and fifty-two heat units, and a temperature for the six hottest weeks of sixty-eight decimal two degrees F., and in the Bitter Root Valley, with a slightly longer season, eleven thousand six hundred heat units and a six hottest weeks' temperature of sixty-five decimal eight degrees F. We find these conditions very closely duplicated in both the irrigated and non-irrigated fruit districts of the interior. No other well-known variety seems to be so admirably adapted in this respect as the McIntosh. This variety has strongly justified our recommendations for it and may yet become our premier apple.

Similar studies made with a large range of varieties have given us most valuable suggestions. We now feel inclined to lay even more stress than before on temperature requirements, as our previous conclusions have become justified by experience.

The great unsolved problem in British Columbia apple culture is to find a suitable, long-keeping apple. The tree must be hardy, vigorous and productive; the fruit must be of medium or larger size, red, of high dessert quality, and of long-keeping quality. We have not yet found all these requirements in one single variety. It is true that the same problem faces apple culture throughout Canada. In the search for this variety we have examined the requirements of practically every variety grown on the continent, and are even now testing a number of varieties grown successfully in Great Britain and Australia. The successful conclusion of the search for the desired variety will mean millions of dollars to Canadian fruit growers. There is still much room for improvement in varieties.

Needed Improvements in Marketing Methods

DEFFECTS in prevailing methods of marketing fruit were freely discussed at the Dominion Fruit Conference, held at Grimsby, Ontario, September 2nd to 4th. The discussion was opened by Mr. Robert Thompson, manager of the St. Catharines Cold Storage and Forwarding Company who said that what is needed is assistance which will help growers to obtain remunerative prices for their fruit while enabling the consuming public to obtain their supplies at reasonable figures. At present consumers in thousands of cases have to pay exorbitant prices.

"This condition," said Mr. Thompson, "prevailed this year in connection with the marketing of the cherry crop of the Niagara district. In many places the fruit remained unpicked because of congestion and low prices in our local markets, while in places not many miles distant cherries were selling for 75 cts. to \$1 a basket. The same conditions arise from season to season in other varieties of fruit, such as plums, peaches, and berries.

"We have for markets our own prairie provinces, where little or no fruit is grown, our own cities and towns and sections not producing fruit in every province of the Dominion. The Dominion Government should appoint commissioners, say, one for the prairie provinces, one for British and European markets, and one for, say, such markets as Australia and South Africa or South America. The duties of these men would be to keep in close touch with crop conditions in every competing country and to keep the growers and shippers and the consuming public posted as to actual facts. The Department could find ways to have these facts placed before those interested, possibly by telegrams, and by giving the information to the daily press.

The Government should also set aside a sum of, say, \$4,000 or \$5,000 for the purpose of making trial shipments of fruit. These shipments could be sent to new points and markets and of lines of fruits not heretofore shipped. One condition might be that the grower would only be guaranteed the cost of packages, packing and labor of picking. If some safeguard was placed on these shipments no very great inroads might be made on this fund. Fruit being perishable and growers busy at the time of ripening, they are unable to give the attention to following up the shipments that is necessary when looking for new markets."

A lively discussion took place over Mr. Thompson's suggestions. Some of the delegates contended that the cherry growers in the Niagara district had themselves to blame if they left their cherries unpicked while there were good

markets to be found for them within one hundred miles. Mr. Thompson replied that growers often did not realize in time that there is going to be a need to find such markets.

For years peach growers, having found that the San Jose Scale would not attack sour cherries, have been planting these cherries. This year there was an unexpected glut in the Niagara district, although one hundred miles or so away cherries were selling at high prices. "It is not that we are producing too much fruit," said Mr. Thompson, "but that our methods of distribution are defective and inadequate."

Senator E. D. Smith, of Winona, said that as a result of thirty-five years' experience exploiting the Canadian markets he felt that while there might be chances to exploit some of the foreign markets he believed that the local markets were fully worked. Every week every local dealer receives circulars setting forth the price of fruit. One of his agents in western Canada had reported to him that only the day before he had met the agents of eight different cooperative associations trying to sell their output to any dealer able to buy. Some local dealers sometimes charge the consumers an unduly high price, but the growers could not prevent that, as it is impossible for them to deal direct with the consumer.

Mr. R. Brodie, of Montreal, said that sour cherries this season had sold in Montreal for as high as \$1.25 a basket wholesale.

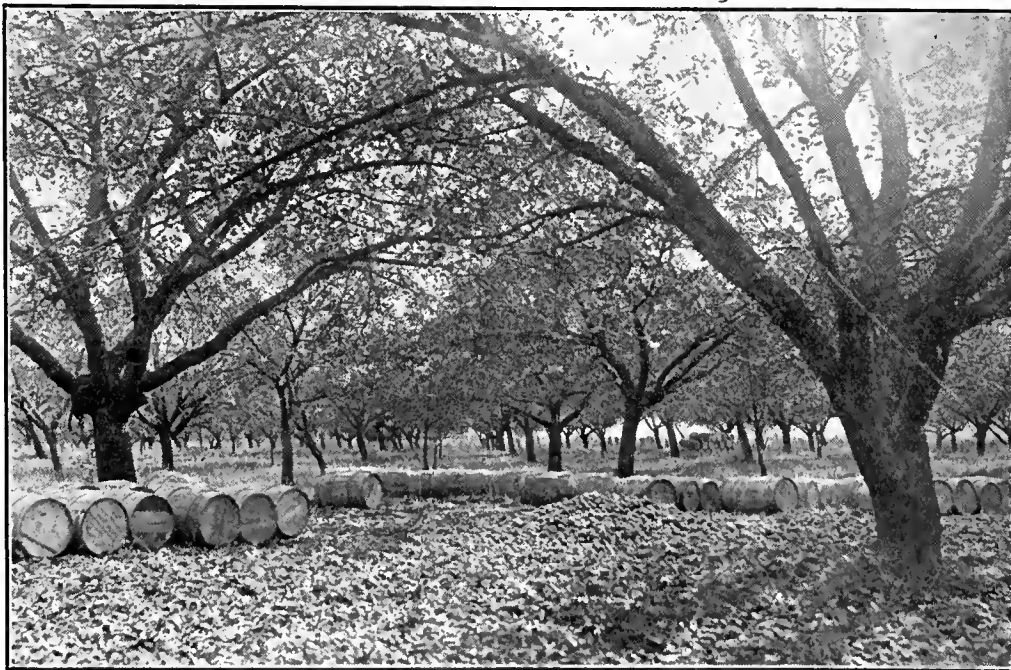
Mr. Pritchard, of Paris, said that he

had been a retailer and now was a grower. Sometimes dealers make undue profits on one consignment, only to lose on another. When there is an unduly large crop growers must expect to receive low prices.

Mr. Thompson replied that he would agree with that statement when the system of distribution was as good as it should be, but not otherwise. There had not been an overproduction of cherries this year, as while there was a heavy crop in the Niagara district the crop east of Toronto was a failure. The total crop of cherries was not sufficient to make a pint for each adult in the province, to say nothing of the children. Under such conditions there was no reason why thousands of baskets of cherries should remain unpicked in the Niagara district, while people were going without cherries not one hundred miles away because of the high prices there charged.

"Growers," continued Mr. Thompson, "often do not want to tell the truth about the size of their crops for fear of depressing prices. In his association he had known the growers in the morning to stoutly deny that there was an overproduction of tomatoes, and that very afternoon they shipped out carloads of tomatoes. The growers had been hoping that there was not an overproduction, and when they denied that there was an overproduction they were simply saying what they hoped was true."

Senator Smith suggested that if the Government fruit inspectors would take a run through the country every now and then they might be able to give valuable reports.



A Productive Apple Orchard in Peel County, Ont., owned by C. Patchett, Cooksville, Ont.
This orchard contains some 400 trees, mostly winter varieties, such as Spys, Greenings, Baldwins and Kings.

Mr. G. E. McIntosh, of Forest, Ont., told of having seen eighteen carloads of peaches in Detroit at one time while across the river in Windsor there were none. In Detroit they sold for \$1.30 a bushel and in Windsor for \$2.25 for three baskets. Some growers who had paid twenty-five cents a bushel duty to get their fruit into Detroit later paid forty cents a bushel duty to get the fruit back into Windsor, and saved money by doing so.

SALE PRICE OF APPLES

Mr. Elmer Lick, of Oshawa, said that he had received reliable information the day before that some Duchess apples had been sold a few days previously in Brandon for \$1.75 a bushel. This, he considered, meant an unfair profit for the retailer in Brandon.

A western dealer who was present, challenged this conclusion. He pointed out that Duchess apples were selling in Ontario for \$2.25 a barrel, freight came to \$1.10 a barrel, jobbers' charge to 50 cents; total charge, \$3.85. Apples at \$1.75 a bushel equalled about \$4.85 a barrel. This left an apparent profit of about \$1 a barrel. Out of this, however, the retailer would have to pay his operating expenses, which would leave him a considerably smaller profit than appeared.

Mr. Pritchard, of Paris, said that he had been a retailer for several years and was now a retailer. He had had all the experience he wanted as a retailer. He would rather hoe potatoes all the year around. One difficulty was that growers do not know what it costs them to produce a barrel of apples on an average, say, for five years.

R. M. Winslow, of British Columbia, said that they had investigated the cost of production in British Columbia, and had placed it at between 75 cents and 80 cents a packed box.

Mr. J. G. H. Pattison, of Winona, said that the present methods of gathering crop information are very inaccurate, not even the Government reports being as accurate as they should be. He thought that trained men should be engaged to go through the chief fruit districts to gain this information.

Prof. T. G. Bunting, Macdonald College, Que., agreed with Senator Smith that the local dealers are kept properly posted as to the prices of fruit, but he thought that some means should be devised of getting that information to the public. The public gains the impression from their local dealers that the crop is small and prices high, and stop buying. If they knew the real conditions they would insist on obtaining a supply at reasonable prices. He thought it would be a good idea if accurate information could be published in the daily papers for the guidance of the public.

Prof. J. W. Crow, O.A.C., Guelph, pointed out that the cost of production has nothing to do with the selling price of the fruit. We require a better system of market reporting and of crop reporting. It had been suggested that the Federal Government should endeavor to gather this information.

Much of the criticism aimed against the retailer, he said, was unfair. This was because we do not know what it costs him to conduct his business. There are very few retailers that are getting wealthy. We know that many fail. One of the reasons for the high cost of doing

The Apple: Our National Dish

What do you say to a concerted effort being made by the fruit interests of Canada to have "The Apple" made the recognized "National Dish" of Canada? The Englishman is noted for his "Roast Beef," the Irishman for his love of "Potatoes," the Scotchman for his partiality to "Oatmeal" and the United Stateser for his "Pork and Beans." Canadians are as yet without a national dish.

The consumption of apples might be greatly increased were they to be advertised in the "1001" ways they would be, both at home and abroad, were they to become known as the national fruit of Canada. They are now produced in all parts of Canada, even the prairies, and are thus national in habits of growth. This suggestion was first made in The Canadian Horticulturist two years ago by Mrs. Edwin Peart, of Freeman, Ont. Let us hear from our readers as to what they think of it.

business is the cost of duplication. All the retailers have to maintain delivery rigs, which drive back and forth over the same ground, entailing much unnecessary expense. Growers should also consider the factor of advertising. Grocers handle most of the leading breakfast foods with little or no profit. This is because they are so well advertised the public demands them and the grocer has to carry them in stock. Fruit growers may be able to obtain a suggestion from this condition.

Mr. H. B. Cowan, of The Canadian Horticulturist, pointed out that there was another factor to be considered. In towns and cities land values are very high. The owners of land often demand enormous rentals from the people who want to use it. A commission dealer with a large warehouse might have to pay a rental of \$4,000 or \$5,000 a year. In addition, he would have to pay high wages to his employees to enable them to pay their rentals. Thus such a dealer would have to sell 4,000 to 5,000 barrels of apples and make a so-called clear profit of one dollar a barrel on each before he would even be able to pay his rent, to say nothing of the wages of his employees or a salary for himself. Too large a proportion of this money went to the landowners, who merely owned the land and charged monopoly prices for its use without having any material risks

or working as do the fruit growers and retailers.

In closing the discussion, Dominion Fruit Commissioner D. Johnson promised that the Government would investigate the points raised during the discussion. Later resolutions were adopted endorsing Mr. Thompson's suggestions regarding trial shipments of fruit and trade commissioners.

Orchard Notes

Orchard trees may be mulched this month. Place the straw or manure out about as far as the branches go, and leave at least three inches bare at the base of the tree, so mice will not work on the tree. Put on about four inches thick.

Throw a few shovelfuls of earth against the young apple and plum trees before the ground freezes. This will help to keep mice away from the trunks.

Save a few cuttings of grapes for planting next year. Cut the wood into pieces having two to three buds, and place in sand or sawdust in a cellar until spring, when they may be planted out in nursery rows.

Grapes in northern sections should be pruned and laid on the ground ready to cover with earth for the winter.

Cut and burn all dead or dying trees on the place, as they will spread disease or insects to other trees.

Lay down raspberries and blackberries and cover them with enough dirt to hold them close to the ground all winter. This should be done when there is no frost in the canes.

Barrel Packing

It is advisable for young packers to take off the head of a barrel of their tailing occasionally and note the number of apples which have been touched by the head at the pressed end. If it should appear that a number of apples have not been touched by the head, and others are severely pressed, then they may rest assured that they have made a poor job of the tail. The aim should be to have equal pressure upon every apple in the last row.

It is not of material importance whether the stem end or the blow end is placed up. It injures the apple somewhat less to have the blow end up, but the apples can be placed in a better position by having the stem end up. All stems showing either on the head or tail should be removed with a stemmer. Do not attempt this work with a knife. This operation is frequently neglected and long stems are pressed into the flesh of the apple, giving entrance to disease germs.

Heads cut from heavy paper or light pulp board are very desirable on both

ends of the barrel. The patent corrugated heads cannot be recommended. It is doubtful, too, whether there is any advantage in using faucey paper heads.

The exact pressure which must be given will depend somewhat upon the variety of the apple. If they are packed for storage or for a short trip, then the pressure need not be so heavy. If they are packed for export it will be better to press them heavily, but not so as to break the skin of any particular specimen. It has been the experience of the

fruit inspectors, who open a great many barrels during the season, that slackness in barrels is as often caused by over-pressure as by under-pressure. Overpressing will break the skin of the apple, or bruise it severely, inducing decay in one or more specimens, which very quickly cause slackness. Certain varieties, too, will require and stand more pressure than others. The Spy has to be pressed very moderately as the apple splits readily under pressure; russets, on the contrary, will stand much heavier

pressure to prevent slackness from evaporation.

In finishing the barrels, six nails in each head, if properly driven, are sufficient. Liners should be used invariably, aid should always be kept damp. Few packers appreciate how much is added to the strength of the barrel by the use of the head liner properly placed. There is no excuse for nailing the second end hoops. It invariably spoils some of the apples and adds nothing whatever to the strength of the barrel.

The Hyacinth

H. F. East, North Toronto

THE most valuable of early flowering bulbs, the hyacinth, is so accommodating that it can be flowered in a variety of ways by very simple modes of treatment, and may be employed as a hardy, rough weather plant for the garden border, or as a grand exhibition and conservatory flower. The bulbs may be planted any time from September to the middle of December with the certainty of their blooming well if properly cared for; but the prudent cultivator will plant them as early as possible in the autumn, and so manage them afterwards as to secure the longest period of growth previous to their flowering. They may be forced to flower at Christmas but the more slowly the flowers are developed the finest in the end will they be.

To obtain good bulbs is a matter of the utmost importance. The mere size of a hyacinth bulb is no criterion of its value—nor, indeed, is its neatness of form or brightness of appearance. The two most important qualities are soundness and density. If the bulbs are hard and heavy in proportion to their size, they may be depended on to produce good flowers of their size and kind. The bulbs of some sorts are never large or handsome, while on the other hand many sorts partake of both these qualities in an eminent degree.

CULTURE IN POTS

It is not necessary to employ large pots of a peculiar shape for hyacinths. There is nothing better than common flower pots, and in those single bulbs may be flowered in a most satisfactory manner. The pots usually employed are four and one-half inch or five inch. I advise the use of smaller pots where hyacinths are grown in frames for decorative purposes, because they can be conveniently placed in ornamental stands or packed close together in baskets of moss when required for embellishment in the drawing-room. A rich, light soil is indispensable. It should consist chiefly of turfy loam, some leaf soil, and an addition of sharp sand. The mixture

should be in a moderately moist condition when ready for use.

Fill the pots full of soil, and then press the bulb into it and press the soil around the bulb to finish the operation. If potted loosely, they will not thrive. If potted too firmly, they will rise up as soon as they begin to grow, and be one-sided. In large pots the bulbs should be nearly covered with soil, but in small pots they must be only half covered in order to afford them the largest amount of root room.

When potted, the coolest place should be found for them; and unless they go absolutely dry, they should not have a drop of water until they begin to grow freely and are in the enjoyment of full daylight. The pots may be stored in a dark, cool pit, and it is advisable to cover them with a few inches of plunging material. As to their removal there

are two matters to consider—they must be taken out as wanted for forcing and certainly before they push their flower spikes through the material over them. The floor of a cool greenhouse is a good place for them when first taken out of the bed and cleaned up for forcing. Another matter of great importance is to place them near the glass immediately their green color is established, and to grow them as slowly as the requirements of the case will permit. If to be forced early, allow plenty of time to train them to bear a great heat. Those to bloom at Christmas should be potted in September. Those to follow may be potted a month later. If a long succession is required, a sufficient number should be potted every three or four weeks. Those potted last will flower in frames or pots without the aid of artificial heat. In any case, the highest temperature of the



Note the Floral Effect of This Modest Home

The front lawn and the garden in the rear of this home, that of Mr. Montrose, of Walkerville, are unusually fine. The window boxes are filled to overflowing with trailing vines, coleus, geraniums, petunias and hanging fuchsias, the whole making one mass of color from the ground half way up the windows.



A Campanula Persifolia or Bell Flower

Like other biennials it may either be sown where it is to remain, any time after midsummer, or may be sown in beds in the spring for transplanting.

forcing pit should be at 70 degrees; to go beyond that point will cause the attenuated growth and poverty of color.

CULTURE IN GLASSES

It is of little consequence whether rain or spring water be employed in their culture in glasses, but it should be pure, and in the glasses it should nearly but not quite touch the bulbs. Store at once in a dark, cool place to encourage the bulbs to send their roots down into the water before the leaves begin to grow. When the roots are developed, bring the glasses from the dark to the light in order that the leaves and flowers may be in perfect health. It is not desirable to introduce in the water any stimulating substance, but the glasses must be kept nearly full of water by replenishing as it disappears. If the leaves become dusty they can be cleaned with a sponge dipped in water, but particular care must be taken not to injure them in the process.

MINIATURE HYACINTHS

The charming little sparkling hyacinths are invaluable for baskets, bowls, and other contrivances for the choicest decorative purposes. In quality they are excellent, the spikes being symmetrical and color brilliant; but they are true miniatures, growing about half the size of the others and requiring less soil to root in. They will flower well if planted in a mixture of moss and charcoal. Keep them moist and covered with the greenest moss to give the ornament containing them a finished appearance.

Mayflowers in January

W. W. McNeely

Among the readers of The Canadian Horticulturist there are many who long for the woody things, the flowers, ferns and plants that draw us to the forests irresistibly as soon as the robin returns. How often during the long winter months we rebel against the snow and would gladly exchange all our hyacinths and tulips and freesias for one whiff of the hepatica's spicy fragrance.

To all such I bring greetings, to a few, perhaps, I bring joy—not this year maybe, but in the years to come. For as I write my window is bright with the blue and pink and white blossoms of the hepaticas, whose delicate aroma carry me back to the days when we went may-flowering, and dared each other to take off our shoes and wade the icy puddles. This, however, is distressing—but who could resist reminiscencing when one's window is full of mayflowers?

To have mayflowers or hepaticas in January requires absolutely no knowledge of floriculture. All that is necessary is to dig up a few roots in the woods just before the snow falls (or even after) and plant them in pots or boxes. Then place them in the cellar for a few weeks and bring them up to the light and heat. Keep them well watered and you will have an abundance of blossoms in two weeks. They never fail, and for an invalid or shut-in nothing will bring more pleasure than a little bowl of hepaticas when winter blasts are blowing.

After the flowers are nearly done the leaves grow luxuriantly. In some varieties the markings are quite pretty and the fresh green of the leaves is so appealing that I feel sure you will want the plants to remain on your windows after the flowers have delivered their message of hope and good cheer.

Planting Suggestions

J. McPherson Ross, Toronto, Ont.

For houses with low foundations plant low-growing plants and evergreens. These make a suitable fringe. For a house with high foundations and basement windows, taller growing shrubs and plants are suitable, as they hide the nether nakedness and give grace and beauty to otherwise ugly features.

The same enthusiasm evinced in spring gardening should be continued till the snow falls. Neatness and order give as much pleasure as floral effects.

Autumn has really more work to do in preparing the soil, rearranging beds and determining the effects for next season than the hurried time in spring will allow. Observe now the effect of certain combinations and aim to produce them in the most prominent places next

season. Flowers such as *Lilium Candidum*, Canterbury Bells, Foxglove, and all whites and blues give more pleasure during hot weather than the gaudy reds and yellows—which are more suited for cooler fall weather.

Dahlias will not bloom during very hot weather, the intense heat having a deterrent effect on buds, which frequently dry up and fall off.

Garden Promptings

Rake a pile of leaves into some out of the way corner to decay and furnish leaf mould for next year.

There is still time to plant tulip bulbs outside or hyacinths, tulips, narcissi, or daffodils for forcing indoors.

As soon as the ground begins to freeze cover the tulip bed with about four inches of heavy manure.

Well-rotted manure put on the lawn in the late fall will help to hold the snow and make a much better lawn next year.

Cover Boston ivy vines with straw as a protection against winter.

Rake up and burn all prunings and weeds in the orchard and garden.

As soon as the ground freezes cover the strawberry bed and bulb beds.

Place oak boughs that are holding their leaves over tender evergreens.

Prune and burn all diseased limbs or dry fruits clinging to the plum or apple tree.

Mulch orchard trees and shrubs with manure as soon as the ground freezes a little.

Draw the currant branches together and tie them to prevent their being broken down by the snow or sleet of winter.

Cut and burn asparagus canes. If well rotted manure is available mulch the bed well with it, plowing it in as early in spring as possible.

Place burlap, cornstalks, or boards on the south side of small smooth-barked lawn trees and apple trees to protect from sunscald during the winter.

Clean hay or straw may be placed on perennials and covered with boards or tar paper to prevent the plants from getting wet. It is well to avoid putting on any material that will smother the plants or permit of their getting wet.

Do not allow house plants to stand in water in the jardiniere. Water as frequently and thoroughly as the plant needs, but keep the jardiniere dry at all times.

After the chrysanthemum plants bloom cut down the flower stocks and set in a cool, light place until toward spring when cuttings may be made for next season's growth.

Rose bushes may be laid down and covered with earth, later covering the earth with hay or strawy manure.

Winter Flowering Plants

B. C. Tillett, Hamilton, Ont.

IT is rather surprising how few people make any effort to grow flowers during the winter. Yet there are quite a large number of plants which naturally blossom at this season. With a little care it is possible to have the house gay with flowering plants, the bulbs to produce them being all easily obtainable and at small cost.

In most years we have long spells of wintry weather, when outdoor work in the garden is necessarily suspended, but that should instil in us a greater desire to carry on gardening work within doors. Of course, indoor flowering plants, except for those who possess hot-houses, are limited to those kinds which lend themselves to indoor culture in pots and which moreover do not need a great amount of artificial heat. But apart from flowering plants, there are a large number of other plants, such as palms, ferns, and those plants which although having no flowers possess charms in the way of ornamental foliage throughout the year.

Among the many flowering plants which can be successfully cultivated in rooms and which will flower during the winter and early spring months the following are favorites, I think, with most of us: Lily of the valley, hyacinths, primulas, cyclamen, daffodils, freesias, wallflower, and geraniums.

The lily of the valley, with its delicate

little white bell-shaped flowers and its exquisite and unique perfume, claims first attention. This plant is a perennial, that is, it is not a plant which requires to be raised every year, but one which will, with care, flower year after year. It is one of the easiest to force, and can be grown in pots, in flat, wooden boxes such as nurserymen use, or in bowls. The plants are raised from bulbs, or "crowns," as they are usually called, and these should be set in some good soil containing leaf mould, about two inches deep and about two inches apart. If retarded crowns can be obtained; these will come into bloom in two or three weeks. For table decoration the bulbs should be planted in a bowl and then once the shoots are well out of the soil, this can be covered over with either moss or grass, which greatly improves the effect. A temperature of 55 degrees is all that is needed, and is preferable to a greater heat, as the blooms will be stronger and will last longer.

HYACINTHS

There are several ways of growing hyacinths. Some people merely place the bulbs in a vase containing water, and made for the purpose, which is an easy way of growing them; but there is nothing very ornamental about this method of cultivation, nor is it the plant's natural way of growing. It can be

much more effectively grown by planting a few bulbs of different colors, say white, pink, and deep blue, in a good-sized bowl filled with fine gravel or pebbles. If the bulbs are set firmly in a little hollow three or four inches apart, the one in the centre being raised a little above the others, and the bowl filled with water until it touches the bulbs, a very pretty effect will be had when the plants burst into flower. The bulbs should be kept constantly in the water, and here too, a natural touch may be added by putting moss or grass about the bulbs.

PRIMULAS

There is an advantage in cultivating primulas owing to their continual succession of flowers, for if the plants receive proper care and attention they will flower for several months. One of the most beautiful kinds is, I think, the giant white—*Primula Alba Magnifica*, to give it its proper and well-merited title. To preserve the flowers in good condition they should be kept in a moderately dry atmosphere, but primulas like a damp bottom to stand on, and it is a good plan to keep the pots in flower pans, though in the winter season they do not require quite so much feeding as during the dry summer months.

CYCLAMEN

Cyclamen like a good mixture of sand loam and leaf mould, and as with primulas, unless one has a small glass house in which to place seedlings, it is more satisfactory to purchase plants in the first instance. However, there are some who have glass, and when purchasing cyclamen tubers they will bear in mind the necessity of pressing them well into the soil so that not more than half the tuber is under the soil. Give the tubers a slight watering only until they commence growing. Cyclamen and primulas, too, are the better for a little liquid manure.

DAFFODILS AND NARCISSUS

Daffodils and narcissus can be grown with excellent results in a window box if of sufficient depth to permit of the bulbs being planted at least three inches below the surface. The plants do well in loamy soil, and the bulbs may be placed about four inches apart. Although more suited to outdoor culture scattered in grass, they make a good show in a room, especially the long, trumpet-like varieties.

All growing bulbs should be watered fairly freely when in active growth, and plants in warm rooms sometimes need daily waterings to prevent the soil becoming too dry.

No indoor flowering plant is more easily forced than the freesia. They are excellent plants for our little greenhouses



A Prize Winning Perennial Border in St. Thomas, Ont.

In the little space here shown some 75 varieties of perennials were grown. The garden won a second prize in a garden competition. It is owned by Mrs. Waterbury.



A First Prize Peterboro Garden. That of Mr. W. J. Kennedy

and can be brought into the room, where its sweet fragrance will soon reveal its presence. All they need is a well-drained light soil, to which a little well decayed manure and a handful or two of leaf mould has been added. They can be readily multiplied from seed. The cut flower is much in demand for decoration. The freesia was originally only an exotic, and its introduction from South Africa is one of comparatively recent date.

THE GERANIUM

It will greatly benefit stock geraniums to give them a good pick over, as those lifted and potted when clearing the beds will have lost a good deal of foliage. Cut back any decaying shoots into the older wood. To keep geraniums alive during the winter months in a greenhouse without heat, the plants should be kept moderately dry, especially when the weather is frosty and should have all the light possible. Also remove all faded or mouldy leaves. In very sharp weather remove the plants indoors or warm the greenhouse, as the frosts must be kept from them.

A Question About Shade Trees

Several of my neighbors and I want to plant maple trees. I ordered Norway Maples, but some of the others thought it best to stay by the Canadian maple and I changed the order. The nursery firm informs me that they have discontinued growing the Canadian maple because they say that it is too slow a grower. They recommend the Norway or Silver Maple. Your opinion will be appreciated.—W. J. K., Galt, Ontario.

The Norway Maple is particularly useful as a shade tree for a city street, as it withstands street conditions remarkably well. The Sugar or Rock Maple—sometimes called Canada Maple—is also a popular street tree, but it does not thrive in cities so well as the Norway Maple, as its foliage is sensitive to

dust and smoke. Experiments at the Central Experimental Farm, Ottawa, indicate that the Norway and Canadian Maples both make about the same rate of growth yearly. The wood of the Silver Maple is soft and brittle and the limbs are easily broken off in sleet or wind storms. It should not be selected except for some special purpose. A bulletin entitled "The Planting and Care of Shade Trees," by F. E. Buck, B.S.A., No. 19, has been issued by the Department of Agriculture of Ottawa. We should advise you to write for it.

Protecting Trees from Mice and Rabbits

W. T. Macoun, Dominion Horticulturist, Ottawa, Ont.

Every year thousands of fruit trees are injured in Canada by mice, and, in the new districts, a large number of rabbits also. There could be nothing more discouraging to a fruit grower, or would-be fruit grower, than to see his orchard which he had cared for, perhaps, for five or six years, ruined by mice; and yet this frequently happens. All this could be prevented if the farmer or fruit grower would use the information available and protect his trees from mice. Some years there is less injury than others, and this fact leads to carelessness, and when a bad year comes the trees are unprotected.

While the depredations from mice and rabbits in winter vary from one year to another, depending on the scarcity or abundance of food, the number of mice which are in the vicinity and the character of the winter, the injury is always greatest when the orchard is in sod, and when there is rubbish lying about; hence the latter should be removed be-

fore the winter sets in. In most cases it is not necessary nor advisable to have the orchard in sod, particularly when the trees are young, although it is highly important to have a cover crop, which also may sometimes become a harbor for mice. As mice may be expected in greater or less numbers every winter, young trees should be regularly protected against their ravages.

Mice usually begin working on the ground under the snow, and when they come to a tree they will begin to gnaw it if it is not protected. A small mound of soil from eight to twelve inches in height raised about the base of the tree will often prevent their injuring the tree, and even snow tramped about the tree has been quite effectual, but the cheapest and surest practice is to wrap the tree with ordinary building paper, the price of which is merely nominal. Tar paper is also effectual, but trees have been injured by using it, and it is well to guard against this when building paper will do as well. After the paper is wrapped around the tree and tied, a little earth should be put about the lower end to prevent the mice from beginning to work there, as if they get a start the paper will not stand in their way. It may be stated, however, that although several thousand young trees have been wrapped with building paper for years at the Experimental Farm at Ottawa, there have been practically no instances where the mice have gnawed through the paper to get at the tree. The use of a wire protector, or one made of tin or galvanized iron, is economical in the end, as they are durable.

There are a number of washes and poisons recommended for the protection of fruit trees and the destruction of the mice and rabbits, but none of these is very satisfactory, as if the mice or rabbits are numerous the poison has not sufficient effect upon them to prevent injury altogether. The following method of poisoning has been found fairly successful for mice, but rabbits are very difficult to deal with.

Make a mixture of one part by weight of arsenic with three parts of corn meal. Nail two pieces of board, each six feet long and six inches wide, together so as to make a trough. Invert this near the trees to be protected and place about a tablespoonful of the poison on a shingle and put it near the middle of the run renewing the poison as often as is necessary.

Just before snow comes cover the lawn with well-rotted manure. Rake this litter off in the spring after the rains have worked the manure into the soil. Better sod will result. Weeds will be kept in check more easily by the grass.

Hardy Flower Border in Manitoba*

By Mrs. H. Lys, Dauphin, Man.

THE border that I am going to describe is one of the most attractive spots in the garden from the time the snow goes until it comes again. It is irregular in shape and might be described as a triangle with two long curved sides. The straight end is at the west and it has a high rustic fence for a background. The long north background is one of Nature's own designing, the lovely trees along the river bank and amongst them are two noble specimens of silver birch. The curve of the drive is the other side. This arrangement has a great advantage, as flowers are all more or less sun worshippers, and often turn their best sides to the south and east.

Nearly all the plants are hardy herbaceous perennials, some hardy bulbs and a few flowering shrubs. When the early bulbs have done flowering, their places are taken by some annual, and there is room left for a few clumps of variegated and rainbow corn, and in the corner near the rustic fence a clump of our old friend, the sunflower.

The first flower that blooms is the *Scilla Siberica*, the old-fashioned squill of our grandmother's garden. This brave little flower is a clear true blue,

and although the cold nights freeze it quite stiff it thaws out and smiles again in the sunshine.

The hyacinths and tulips follow closely. I was surprised last year to see how much frost the hyacinths stood after they were in full bloom, but although they do well some years they are not to be depended upon.

Between these bulbs are plants of *Arabis Alpina* or rock cress. Its greyish green leaves and delicate white blossoms make a beautiful contrast and the edging of the border is *cerastium*, also known as snow in summer. Its silvery leaves are always beautiful, and, when covered with white flowers, it deserves its name.

The yellow, white and red Iceland poppies are with us before the bulbs are over, their delicate stalks holding the beautiful fragile flowers with a dignity of their own and these are so useful for cutting (but don't use too many in one room, as they have rather an unpleasant odor). If kept cut and not allowed to go to seed, they will contribute their share of beauty to the border for many weeks.

The old favorite bleeding heart is one of the most graceful of the early flowers. If you have an especially fine clump of this, do not let it grow on too long without dividing it. If left more than three

or four years, the centre of the crown will decay and the beautiful plant will dwindle away. These plants delight in being shared with your neighbors, and simply will not grow in one huge clump for years.

In this respect they differ from the glorious queen of the herbaceous border, the paeony. This lovely flower resents disturbances, except at considerable intervals, and, as you probably know, seldom blooms the first year or two after moving. The glorious clumps of *Festiva Maxima*, *L'Esperance*, and others shed a delicious fragrance over the border so different from the old-fashioned red paeony.

There is one gorgeous flower that blooms at the same time as the paeony—the Oriental poppy. Its brilliancy is so great that it almost kills every color near it; so it needs very careful placing in the border. I have mine near the rustic fence which is then covered with the soft green leaves of the Virginia creeper and native grape and near the brilliant orange scarlet I put plenty of white, such as clumps of *achillea*.

LATER BLOOM

From the early part of June the flowers are so abundant that I hardly know which to mention first. The pyrethrums are very pretty and are such good flowers for cutting; the long slender stalks and varied shades of pinks, reds and whites make them one of our best all-round early flowers. Be especially careful of any good double ones, as they do not come true from seed; most of them come single.

Near the front of my border are clumps of *dianthus* of various kinds. These are so varied in coloring and marking that they are an endless delight to grow.

I had almost forgotten the beautiful iris, well named "the poor man's orchid." Of course, not all kinds are suitable for our climate, but the Siberian and German varieties are amongst the most profitable plants in the border. They bloom freely, are past description with regard to the rich and delicate colorings and markings, and their foliage is always decorative.

The dainty columbine or aquilegia, also known as "doves in a nest," from the form of the back of the flower, is one of the indispensable perennials. There are many varieties of these. The long spurred ones are so fairy-like that one almost expects to see fairies dancing amongst them in the June moonlight. The varied shades, from white, lavender, pink, red, blue, purple, yellow and combinations of these give everyone a chance to have their favorite colors. I have never seen a wedding decoration all of columbines, but can imagine it would be unique if the white

*Paper read before the recent annual gathering of the Manitoba Horticultural and Forestry Association at Winnipeg.



Choice and Rare Varieties of French and English Paeonies

This illustration gives only a faint idea of the beauty of these paeonies, as grown by Mr. J. R. Thompson, Hamilton, Ont. They include *Marechal Vaillant*, a dark mauve pink; *Polix Crousse*, a brilliant red; *Madame Emile Galli*, a lilac white, tinged with pink; *Couronne d'Or*, a white with yellow stamens, the centre petals tipped carmine; *Mathilde de Roseneck*, lilac rose colour, a very large flower; and *Monsieur Jules Elie*, a pale lilac rose and a very fine variety.

and pale colors only were carefully chosen. I know that last year I longed to make a bride's bouquet with some white ones I had; they seemed to be growing for that. The leaves of the columbine are very beautiful. Did you ever use them with scarlet geraniums and a few dainty white flowers for a table decoration? In the fall they are beautifully tinted.

The various kinds of phlox occupy an important place about half-way back in the bed. The early and later varieties enable one to have continuous bloom. Joan of Arc, a tall variety, if not caught by the frost, makes beautiful white trusses late in the fall. The pinks, coral red and shaded ones, are such handsome flowers that no herbaceous border can afford to be without them.

The perennial larkspurs, shorter and not so compact in their growth as the delphiniums, are very beautiful and fill their corner with constant bloom.

The old-fashioned ribbon grass has its place, and very effective it is.

The dear old pansy is there also in all its various forms and colors.

Last year there were a few clumps of that beautiful biennial, the Canterbury bell. These were one mass of flowers, blue, white, and delicate pink.

The *Spiraea Van Houttei* is one of our best flowering shrubs. I have small specimens of these in the border, also lilacs and *hydrangea paniculata*. This does very well here and the immense trusses of bloom remain till spoiled by the frost.

The *hemerocallis* and *funkia* raise their stately heads and bring a touch of yellow where it is needed.

But the crowning glory of this particular border are the clumps of delphiniums. There is one, a rich violet, near a golden elder—truly a study of purple and gold too beautiful to describe. Then there are the blues, that seem to try to catch all the color of the noon-day sky, and the blues and mauves melted together, as only Nature can blend colors, and one lovely creamy white. Even the dainty humming birds seemed to think that they were especially blooming for them. They were constantly hovering in twos and threes up and down the blossom spikes. These stately flowers are in big clumps. Their neighbors have been carefully chosen, their immediate background spruce, golden elder, and variegated corn.

Last year there were several clumps of hollyhocks, white, red, pink, and yellow in the background near the spruce trees. These old friends are not so easy to grow here as the delphiniums. After the first winter they are likely to kill out, the same plants may be grown every year if they are lifted and

stored in a root cellar for the winter.

Perhaps some people may think this must be a very mixed up kind of flower border—so many varieties (and I have overlooked one or two—lychnis, and a clump of common asparagus with its pretty foliage and red berries). It is a

Concrete Hotbeds and Cold Frames

THERE is nothing which pleases the appetite so much as delicacies out of season. As for vegetables, such delicacies are not costly luxuries, and are within the means of anyone who will take the time to build and run a hotbed or a cold frame. Such a bed will make possible home-grown lettuce and radishes (and even violets) for the Christmas dinner. Moreover, by this means, one can depend on having good hardy plants for spring planting in the garden.

The fall months are the best in which to prepare the hotbed. A few boards and sash are all that is required, unless it is desired to avoid annual repairs, in which case it can be built of concrete. Locate the bed on the sunny, wind-protected side of a building. A four-sash bed is usually large enough except for commercial purposes. A standard hotbed sash is three feet by six feet. Lay out the bed six feet eight inches wide by twelve feet ten inches long. Concrete walls are six inches thick. Dig the foundation trenches two feet six inches deep within the lines given above. Make forms of one inch lumber to carry the south (front) wall six inches and the north (back) wall fourteen inches above ground. Forms are not required below ground level. The tops of the end walls slope to the others. Before filling the forms with concrete, test the dimensions of the bed by means of the sash. See that the sash laps the forms two inches on all sides.

MIXING AND PLACING THE CONCRETE

Mix the concrete mushy wet in the proportion of one bag of Portland cement to two and one-half cubic feet of sand to five cubic feet of crushed rock, or one bag of cement to five cubic feet of bank-run gravel. Fill the forms without stopping for anything. Tie the walls together at the corners by laying in them old iron rods bent to right angles. While placing the concrete set half-inch bolts about two feet apart to hold the wooden top-framing of the bed to the concrete; or make grooves in the top of the concrete for counter-sinking the sash to the level of the walls with an allowance of one-quarter inch for clearance. This can be done by temporarily embedding in the concrete wooden strips of the necessary dimensions. During this operation, by means of blocks nailed to the strips, make provision for the

mixed border. The only things kept in mind when planting were the relation of colors, the various heights of the plants, and to avoid all stiffness of arrangement. The result is what was intended—flowers from early spring till freeze up—a feast of beauty.

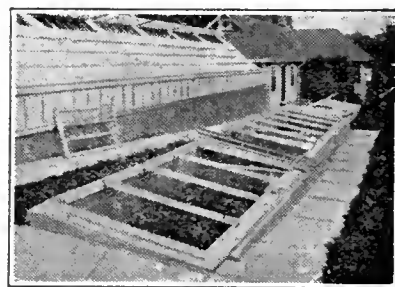
centre-bars described below. Remove the strips as soon as the concrete stiffens. Take down the forms after five days. The extra two and five-eighths inches in length of the bed is allowance for the three centre-bars between the sash. These sash-supports are of dressed one-inch stuff, shaped like a capital T turned upside down. The length of the stem of the T is equal to the thickness of the sash and the top is three inches wide. Sufficient materials for the concrete will be supplied by fourteen bags of Portland cement, one and one-quarter cubic yards of sand, and two and one-half cubic yards of crushed rock; or fourteen bags of cement and two and one-half yards of pit gravel at a cost of ten dollars.

PREPARATION AND CARE OF THE HOT-BED

If the bed is to be used as a cold frame, it is finished when covered with glass. For a hotbed, dig out the dirt to the depth of two feet, tramp in eighteen inches of fresh horse manure well mixed with leaves or bedding and cover it with four to eight inches of rich soil. Bank the excavated earth around the outside of the bed. Put the sash in place, hang a thermometer on the inside and allow the bed to heat up. After a couple of days, when the temperature has dropped to eighty-five or ninety degrees, planting may be safely done. Seed catalogues contain valuable information as to the length of time necessary to produce the different kinds of plants.

During the midday, in bright weather, the bed will become too hot and must be ventilated for a short period by raising the sash on the side away from the wind. Water the plants in the morning only and ventilate later to remove the moisture from the foliage. On winter nights it will often be necessary to cover the bed with old carpets and boards.

It is a genuine pleasure to grow win-



A. Concrete Hotbed



A Crop of Onions Well Worth Harvesting

South-Western Ontario, including portions of Essex, Kent and Lambton counties, are becoming noted for their possibilities in the production of vegetables. Vegetables are grown on a scale unknown elsewhere in Ontario. Many are shipped across the border and up the lakes. This crop was grown near Sarnia.

ter vegetables and flowers for home use. If the supply exceeds the needs, there is generally a profitable market for such products.

Potato Storage

Two distinct types of storage rot may occur on potatoes. Both are common. The tuber may become infected with a dry rot in which case it gradually shrivels up, becomes powdery, and changes to a light brownish color; or a soft rot may occur in which the tuber is rapidly reduced to a soft shiny foul-smelling mass.

The organisms causing these rots, attack the potatoes either through wounds or following the attack of the wilt fungus. Primary infection may occur in the field and spread to healthy potatoes when the latter are placed under improper storage conditions.

It is important therefore to reject all tubers showing any signs of rot at digging time, and to provide a dry, well ventilated cellar for storage. A storage cellar that is warm and moist is very favorable for the rapid growth of the rot inducing organisms. The temperature of the storage cellar should be kept as close to 35 degrees F. as possible. Great care should be taken to avoid bruising the potatoes in digging and handling.

The most certain and satisfactory way to ascertain the vitality of vegetable seeds is to plant them in soil under actual conditions rather than make sprouting tests in various devices.

Vegetable Reminders

Squash and pumpkins keep best in a warm, dry place.

Clean straw from four to six inches deep should be placed on strawberries.

Go over the cabbage and other vegetables stored in the cellar and pick out the diseased specimens.

Cut and burn the foliage of the asparagus bed.

Prepare soil for next season's hotbed. Cover this deeply with horse manure so it will not freeze during the winter.

Fall plowing of the garden destroys cutworms and other insects, beside getting rid of fall weeds.

Go over the garden and burn all rubbish remaining. This will destroy many insects.

Carrots, beets, and salsify keep better if covered with a small amount of sand to prevent drying out.

Squash and pumpkins should be stored in a dry cellar or building where the temperature is between fifty and sixty degrees. Only mature specimens should be used, and these should be handled carefully to prevent injury.

Snow will be flying in many sections before the month closes. No time should be lost in attending to fall work. Just so much must be done, and the safe policy is to make haste before rough, stormy weather interferes.

The hardy onions should be mulched with coarse material as manure, straw or old hay, after the ground is frozen.

The cold frames and hotbeds should be cleaned of weeds or rubbish which would interfere with their use later in

the winter. Such rubbish also harbors mice, which are so annoying sometimes in frame work.

Horse radish, salsify, and parsnips are hardy roots and may be left in the ground all winter without danger of loss. There is a demand for these roots, however, throughout the winter and profits may be made larger and the spring work lighter by storing some of the roots to sell during the winter.

Make certain to have enough soil stored to start early vegetable plants. It should be selected from fields where troublesome diseases have not been known to occur.

Celery trenching should be well under way in many sections, where there is a large crop to be handled. Early trenching is a disadvantage to long keeping, but it is usually necessary to start the work soon after November 1 when there is a large amount to be stored.

The storing of late cabbage should also be delayed as long as possible. Burying is one of the best methods to keep the heads bright and crisp. Any method of burying is troublesome, but it usually pays to care for at least a portion of the crop by this method, unless special storage houses are available.

It does not usually pay to store vegetables which can be sold at fair prices in the fall. The grower should always take into account the cost of storing, risk of losing part of crop, shrinkage, and additional expense in preparing for market.

A supply of rhubarb may be had during the winter if a few clumps are taken up before the ground freezes and put in boxes or on the cellar floor. These clumps may be broken into pieces and covered about one inch deep with soil. Water thoroughly and keep dark, so that only a small leaf surface will be formed. It is well to let the roots freeze until about December twentieth.

The forcing of rhubarb is a profitable industry where there is equipment for such work. The old roots may be dug in the fall, and the large roots used for forcing during the winter and the smaller ones replanted in the open the following spring.

Rhubarb forcing may begin at any time. If the ground is not frozen too hard, a mould-board plow may be run along one side of the row and the roots may then be removed with ease. Allow them to freeze a few days before planting. Then store a supply in an out-building, cover with soil and hold them for later planting.

Onions may be forced in warm cellars. The partial darkness will make the stems more tender. If soil is placed between the stems as the tops grow it will increase the length of the white tender portion.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

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The Canadian Bee Journal.

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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, \$1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1913. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,625	Total	150,293

Average each issue In 1907, 6,627
" " " 1913, 12,524

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Regues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

THE LATE DR. WM. SAUNDERS

The late Dr. Wm. Saunders, formerly director of the Dominion Experimental Farms, who died at London, Ont., on September 13, 1914, in his seventy-ninth year, was keenly interested in many things, but we believe that in horticulture he had his greatest delight during the past thirty-five or forty years. As a diversion from the confining occupation of a chemist, he, when a young man, sought the pleasures and benefits that the culture of fruits and flowers brings to those that love them. As early as 1868 he began to plant a fruit farm near London, Ont., and a committee of the Ontario Fruit Growers' Association visiting this farm in 1873, have, in their report the following words: "The fruit farm of Mr. Saunders in the immediate vicinity of London, is the most extensive in the western portion of the Province of Ontario. It consists of a hundred acres under the closest fruit culture."

When the large fruit farm was just beginning to produce a considerable crop of fruit, the management of it became burdensome and Dr. Saunders therefore sold his farm and purchased a smaller place nearer to the city where, without any thought of making it profitable financially, he could continue to cultivate fruits and flowers in great variety. It was on this smaller farm, especially, that he collected ornamental trees and shrubs in great variety and obtained the knowledge of them and their culture, shown by him in later years, and which enabled him to intelligently supervise the work in horticulture of the Dominion Experimental Farms.

The desire to originate new, and if possible, better varieties, was very strong in Dr. Saunders. He was one of the earliest hybridizers in Canada. He believed that the best way to obtain new varieties of merit was by combining the good qualities of two in one. In 1872 he read a paper before the Ontario Fruit Growers' Association on "Experiments in Hybridizing," in which he described the methods adopted by him and the results of his work between 1868 and 1872. "For five years," he states, "I have been working more or less in this interesting field and have experienced some successes and many failures." Beginning in 1868 he made crosses with the gooseberry, grape, raspberry and pear, during the next five years. It takes a long time to originate, thoroughly test, propagate and introduce a new variety, and while Dr. Saunders did not live to see all his best things in the hands of the nurserymen, he had the satisfaction of knowing that at least some were well and favorably known. Elsewhere in this issue more about his work is told by his former co-worker, Mr. W. T. Macoun, now Dominion Horticulturist. In the death of Dr. Saunders horticulture has lost one of its best friends and warmest advocates.

A LESSON FOR ONTARIO

The cooperative apple growers' associations of Nova Scotia have set an example this year in cooperative marketing which should not be lost on the local associations in Ontario. In Nova Scotia, where practically all the local associations are united through the United Fruit Companies Ltd. of Nova Scotia, the growers have been

able to charter numerous steamships and thus to send their product with the least possible delay to the European markets. They have also sent special trains of cars loaded with their apples to the western markets in record time. By the enterprise thus shown they have triumphed to a very considerable extent over the adverse conditions of even such a year as this.

In Ontario, where there are even more local associations than there are in Nova Scotia and where the apple crop is considerably larger, only a small portion of the local associations are united in a central organization. Thus they have been unable to unite their forces to the same advantage as have the growers in the east. Instead of working together to market their large crop, Ontario Cooperative Associations have been underbidding each other, especially on the western markets, and one association at least has been detected making false and derogatory statements about the pack of other associations. In some cases local associations have sold fruit at what has amounted to a loss.

If this year's experiences lead the Ontario cooperative associations to unite in a large central organization, such as controls the situation in Nova Scotia, it will be looked back to in future years as a season which marked a great advance in the fruit marketing methods of the province. Even yet, if the local associations will get closer together this season, they should be able to market the remainder of the crop with advantage to all.

A NEW SITUATION TO FACE

Now, that the Panama Canal is rapidly reaching the point of completion and operation, the fruit growers of eastern Canada will soon have some new problems to face. The apples shipped from British Columbia and Pacific Coast States have made a high reputation for themselves on the European markets to say nothing of the oranges and other tender fruit produced in California. The growers of the west have established a name for their fruit in these markets in spite of high railway and shipping charges. The completion of the Panama Canal is going to greatly reduce the transportation charges on their fruit. To the extent of this reduction they will be able to compete that much more favorably with the eastern growers for the markets of the eastern coast states and of Europe.

British Columbia papers recently have been pointing out that while no rates from British Columbia points to Europe have as yet been announced, rates from Seattle and Portland to Europe on dried fruits and canned goods will be thirty-seven and a half cents a hundred pounds. Apples and dried fruits usually go at the same rate, and if thirty-seven and a half cents a hundred pounds is fixed for boxed apples, even with the extra refrigerating charges, Washington growers will save from one hundred and twenty to two hundred dollars a carload on shipments to England and Hamburg. British Columbia growers may expect to obtain rates similarly advantageous when traffic begins by way of the canal from Vancouver.

The first effect of the improvement in shipping charges will be to increase the production of fruit in the west. This will constitute the chief danger to the eastern fruit growers. In time, however, conditions will tend to balance themselves once more, as the final effect of the completion of the canal will be to increase the land values of western orchard land to an extent exactly corresponding with the reduction in ship-

ping charges. As it will then be more difficult for fruit growers to obtain a start in fruit growing or to enlarge their permanent acreage the benefits at first derived from the canal will in time be offset by the burden imposed on western growers by the increased value of their land.

An examination of the financial statements of the Ontario Horticultural Association for the past few years shows that when the balance brought forward each year is eliminated approximately one half of the receipts of the Association have been paid out in the form of an honorarium or salary to the secretary of the association, and in the form of small grants to his stenographer and similar help. The secretaries of most horticultural societies receive little or no remuneration for what often are most arduous labors. They perform their work because of their desire to promote the cause of horticulture. The local societies generally have need for all the money they receive. Still they wisely support the provincial association by making grants to it of from two to five dollars each out of their limited funds. The secretary of the provincial organization is a government official who receives a liberal salary from the government to superintend the work of the horticultural societies. His duties as secretary of the provincial association are light indeed. It is a little difficult to understand, therefore, why he should receive such a large share of the funds of the association, derived, as they are from the funds of the needy local organizations. Protests against this condition have been made privately in the past without effect. It would seem, therefore, as though the delegates to the approaching convention might give the matter a little of their attention.

The Department of Trade and Commerce at Ottawa, under the direction of Sir Geo. E. Foster, has shown commendable enterprise this year in appropriating fifteen thousand dollars to advertise the apple as an article of diet in the consuming centres of Canada. The advertisements that have been running in the press have been well written and should be productive of good. It is unfortunate that it was not found possible to advise would-be buyers where they could procure the fruit. Local growers who have fruit for sale would do well to take advantage of the advertising that has been done by the Government by placing small advertisements in the papers which have been carrying the advertisements of the Government, stating the varieties of fruit they have for sale and their price by the box or barrel. Some growers who have already done this have been well repaid for their outlay.

The annual convention of the Ontario Horticultural Association will be held this month in Toronto. As usual it will be conducted in connection with the Ontario Horticultural Exhibition. The provincial association has done much more to promote the interests of the local horticultural societies than most of the societies realize. We hope, therefore, that the local societies at their annual meetings this month will make it a point to see that delegates are appointed to attend the convention in Toronto of the Central Association.

One point that was clearly revealed at the Dominion Fruit Conference last month was that fruit growers are pleased with the appointment of Mr. D. Johnson as Dominion Fruit Commissioner and that

they have confidence in him. While Mr. Johnson had had as wide an experience as a fruit grower—and a successful one, too—as probably any man in Canada, he is unassuming and modest and thus the more easily obtains the hearty cooperation of those whose support he requires. We predict with confidence that through his efforts much will be accomplished during the next few years on behalf of the fruit interests of Canada.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

GUELPH

The Guelph Horticultural Society held a flower show and sale this fall in aid of the Red Cross Society, the returns of which were handed over to be used for the benefit of the wives and families of the volunteers who are now representing the city on European battlefields. The show was held in the armoury and one hundred and sixty dollars was realized. Messrs. A. and J. Gilchrist provided five thousand beautiful gladioli free of cost. They were sold in no time and three times the number might have been disposed of. Some chrysanthemums donated by Captain Taylor also found a ready sale. The variety, Princess Patricia, was much admired. An interesting programme of songs and music was provided.

DUNDAS

The Dundas Horticultural Society started its fall and winter meetings in October by an illuminated lecture on bulbs and their treatment. Excellent views of tulips, daffodils, gloxinias, calceolarias, and some beautiful orchids, were shown from the gardens of Sir Edmund Osler of Toronto. The lecture was given by Mr. Allen, who is Sir Edmund Osler's head gardener. Mr. Allen is a man well up in all branches of horticulture. He has had a wide experience in England and Ireland. It is our intention to keep up these illustrated lectures and thereby try to create a greater interest in flowers, not only among the members of our Society, but the town in general.—J. A. Kyle, Secretary.

ST. THOMAS

Rivalry in the lawn, vegetable and flower garden contest conducted by the St. Thomas Horticultural Society this year, was very keen. Seventy-five places were entered. The Collegiate Institute, Jos. Clarke, caretaker, won the silver medal and seven dollars in cash offered for the best school. The Balclava St. School, with I. Wright, caretaker, and Wellington St. School, with Jos. Gillard, caretaker, tied for second place. The Merchants' Bank won the first prize offered for floral beautification of business places. Handsome prizes were offered in the different classes. These were on exhibition for some time in one of the city stores.

At a meeting of the Ginseng Growers' Association of Canada, held in Toronto, September 9th, the following officers were elected: President, Mr. Austin; first vice-president, D. Menzies; second vice-president, Mr. Leary; secretary, P. Wilson; executive, Rev. Dr. Medd and Mr. Sawyer.

British Columbia

New regulations empowering the British Columbia provincial fruit inspectors to seize all infected fruit, no matter where it is on display, even though it has previously been passed by the inspectors, have been made by the Provincial Board of Horticulture. This is the most drastic step yet taken in the campaign against the importation of fruit affected with any form of plant or insect disease. Cases have been reported where evidences of infection were not apparent at the time of inspection, but the shipments, on being opened up on the fruit stands a few days later, showed that infection had ripened. These shipments will no longer be protected by the inspector's certificate and will be open for inspection and seizure as if they had never been previously inspected and passed.

Another regulation aimed at stamping out the risk of infection from codling moth calls for the inspection of all fruit cars that enter Canada from any point in the United States. These regulations, under the powers granted by Sir John Thompson, when he introduced the Horticultural Act over twenty years ago, acquire the force of statute law after being gazetted in the official Gazette.

Another important decision of the Board of Horticulture is a request to the Ottawa authorities to place "black leaf forty" on the free list. Black leaf forty is a preparation of nicotine and sulphur which is used extensively for spraying purposes. It is recognized as the best contact insecticide known, and is made only in Kentucky, where a special kind of tobacco is grown for its manufacture. At present it pays a duty of twenty-seven and a half per cent. in Canada. In the United States it retails for twelve dollars and a half a gallon. In this province, buying it in very large quantities, the Government has to pay fifteen dollars and twenty cents a gallon, the growers still more. Carbon bi-sulphide, which is used for fumigating insect pests, was placed on the free list a short time ago.

The Board of Horticulture, which has charge of horticultural regulations for the province, is composed of the Minister of Agriculture; Deputy Minister, W. E. Scott; Fruit Inspector, Thomas Cunningham, and a number of prominent fruit growers from each district, including Messrs. Stratfield, Metcalfe, Ricardo, McHardy, Palmer and Woodward, representing respectively Vancouver Island, The Lower Mainland, Okanagan, Kootenay, Kamloops and Victoria districts.

In order to thoroughly abolish any risk of fire blight infection in the Okanagan Valley, a field corps of ten men has been out, under instructions from the Government fruit inspector to inspect every tree in every orchard in the Okanagan. Any traces of fire blight were followed up, and infected limbs or trees were committed to the flames. The evidence of fire blight in the province has only been slight, but Inspector Cunningham and his staff are determined to completely eradicate every vestige of the blight for fear it gets a foothold and works havoc in the orchards of the Okanagan, as it has done in many of the orchards of the adjoining state of Washington.

The United Fruit Companies of Nova Scotia Ltd. some weeks ago sent F. M. Chute to South America to find a market for a portion of their crop of apples. Trial shipments during the past few years have somewhat prepared the field.

Fruit Conditions in Winnipeg and the West*

Prof. F. W. Broderick, Agricultural College, Winnipeg, Man.

SHIPPER of fruit, and more particularly Canadian fruit, are looking more intently to the Canadian west as an outlet for their products. The Canadian west must continue to be a customer for the fruits of British Columbia, Ontario, Quebec, and Nova Scotia, and a customer whose wants will go on increasing with the growth of population in Manitoba, Saskatchewan, and Alberta.

There is a large trade of fruit to these western provinces. To a considerable extent it will depend upon the shippers themselves as to how this trade is retained and increased. Fruit is every year becoming a commodity of greater necessity in the dietary of western households. The many uses to which fruit, cooked and uncooked, may be put is causing it to be regarded as an article of necessity rather than a luxury.

To give an idea of the immense amount of fruit received into Winnipeg, I might quote from the figures of the Chief Fruit Inspector for Winnipeg. According to his figures there were received into Winnipeg the following quantities of fruit during the years 1913 and 1914:

ONTARIO		
540 cars apples	.....	Approx. 83,200 bbs.
30 cars apples	.....	18,000 boxes
107 cars grapes	.....	267,500 bsks.
139 cars grapes, peaches, plums, tomatoes, apples	.....	347,500 bsks.
BRITISH COLUMBIA		
32 cars apples	.....	19,200 boxes
12 cars crab apples	.....	7,200 boxes
NOVA SCOTIA		
2 cars apples	.....	400 bbs.
IMPORTED		
116 cars Am. apples	.....	20,880 bbs.
145 cars Am. apples	.....	87,000 boxes
24 cars peaches, plums, cherries, apricots	.....	22,180 cts.
10 cars pears	.....	4,500 boxes
26 cars strawberries	.....	12,845 cts. qt.
10 cars strawberries	.....	8,154 cts. pts.
7 freezers and 15 cases do.	.....	740 qts.
295 cases do. express	.....	7,720 pts.
14 cars tomatoes	.....	8,642 cts.
ON HAND DECEMBER 31ST, 1913		
3,152 barrels.	.....	15,685 boxes apples.
Fruit received in Winnipeg to August 10, 1914.		
EXPRESS UNITED STATES		
3,000 pints strawberries.	.....
BRITISH COLUMBIA		
500 packages cherries—Express	.....
1 car apples.	.....
IMPORTED		
37 cars strawberries—pints.	.....
15 cars strawberries—quarts.	.....
30 cars tomatoes—crates.	.....
35 cars Washington apples—boxes.	.....
5 cars Am. apples—bbs.	.....
65 cars Cal. and Wash. small fruits.	.....
25 cars raspberries and loganberries—pints.	.....
10 cars blackberries.	.....
ONTARIO		
25 cars barrel apples.	.....
18 cars basket fruits and tomatoes.	.....
2000 packages tomatoes, etc., by express.	.....

A large proportion of these goods was consumed in Winnipeg, and the balance was shipped to points farther west. Winnipeg is very largely the distributing point for fruits coming from the east and south. In addition to the quantities mentioned, considerable quantities are shipped to other points in the prairie provinces from British Columbia and the Pacific Coast states.

Fruit to-day is in great demand in the Canadian west, and shippers will find a ready sale if their goods are put on the market in attractive form. The users of fruit are every year increasing, and many who a few years ago regarded fruit as a

table luxury are now coming to regard it as an article of necessity.

There are several factors which will do much to widen the sale of fruit. Among the more important of these are: (1) Placing the goods on the market in prime condition; (2) using an attractive and convenient package; (3) getting the goods in the hands of the consumer as quickly as possible after arrival; (4) regulating the supply so that goods may be obtained by the consumer at a reasonable price.

The condition of the fruit on its arrival will depend to a large extent on the way the fruit goes into the car and the way it is handled during transshipment. Pre-cooling of fruits, particularly of tender fruits, judging from the results which have been obtained from experimental shipments, will do a great deal to improve the quality of these fruits on arrival. By removing the natural heat from the fruit before it goes into the car it will carry much better during shipment and stand up for a much greater length of time after it is removed from the car on arrival. Pre-cooling with long distance shipments of tender fruits will do a great deal to bring the goods on the market in prime condition.

Another point affecting the condition of the fruit on arrival is the character of the package in which the fruit is shipped. The main thing in this connection is that the package be firmly made in order that goods will not be crushed during transshipment, and probably the most important of all that the package be of moderate size to limit the amount of fruit in each package.

OVERLOADING

Many carloads of fruit coming into the west to-day are overloaded. This, of course, is done to get advantage of the lower freight rates. If the same rate could be obtained from eastern and western points for a 15,000 pound car that is being paid to-day for a 20,000 to 24,000 pound apple car, a great shift would be made to ensure the safe arrival of tender fruits. Cars frequently come into our western markets overloaded, and if there has been any defect in icing en route there is considerable waste as a result.

Much of the success of shipment depends upon the way the goods are placed in the car. The placing in of false floors, proper spacing in the case of box packages, leaving an open space in the centre of the car, and proper bracing, are points which have been introduced to good advantage in long distance shipments into Winnipeg. The main factor in long distance shipments, of course, is free circulation of air about the fruit. To ensure this the false floor should be at least four inches from the floor, and the goods properly spaced. In shipments sent out during summer months, shippers should take the additional precaution of having the car well iced and seeing that the drain pipes are properly opened and that the waste water has a free escape.

For winter shipments of apples, the use of false sides, as well as false doors, would do a great deal to ensure that the goods will come through in good condition. As an additional precaution in late shipments, shippers would do well to see that the drain pipes are plugged and that the plugs are put in on top of the car.

THE PACKAGE

In connection with the second point, that is an attractive and convenient package, a great deal could be said. We hear a great

deal to-day about the box as the most suitable package, and from the returns of shipments into Winnipeg of goods from British Columbia and the Pacific Coast states, it is growing in popularity there. From many standpoints the box is an ideal package—neat, compact, uniform, and a desirable package for loading cars. Its uniformity makes it a desirable package for the dealer to handle and tends to encourage its popularity. It is an ideal package for certain conditions, but it cannot be said that there is not a strong demand for certain classes of goods in baskets and barrels.

From return of shipments during recent years to the west from the eastern provinces the barrel and basket seem still to be popular packages. Western markets will continue to use large quantities of basket fruit providing it is well assorted and attractively put up. The six-quart basket, from the standpoint of carriage during shipment and suitability for market purposes, seems to be the most desirable package. Cars of properly loaded basket fruit arrive on our markets in excellent condition, showing that the basket is a good package from the standpoint of carriage.

As a market package it is popular for the reason that it is convenient to handle and holds a suitable amount of fruit to be readily saleable. Eastern shippers have an exclusive market in basket fruit and should make a specialty of it.

THE USE OF THE BARREL

The barrel has come in for some criticism as a package for the shipment of the hardier late fruits on account of its size and the difficulty with which it is handled. There is a demand in the west for barrel apples. As figures will indicate the larger shipments of apples from the eastern provinces are in barrels. Many people living in the west are accustomed to buying their apples in barrels, and will continue to demand them put up in this way. In order that this barrel-apple trade be retained and enlarged, shippers will have to keep a uniformly high standard of packing, having their goods well graded and carefully marked.

Probably the greatest problem before the shipper and dealer to-day is the question of distribution. Irregularity in shipments, with the gluts which follow, results in a period of low prices, with a subsequent loss to the shipper. If the question of effective distribution is ever to be settled, there must be a getting together of shippers and a scheme marked out whereby a central distributing agency will be established and goods will be distributed to different points as the market demands.

Western markets will handle considerable amounts of fruit during the entire season, providing it is put on the markets with regularity. This is particularly true of the apple trade. Nova Scotia, Quebec, Ontario, and British Columbia are now becoming heavy producers of apples, and a great many of these apples are finding their way into our western markets. If these apples which are handled during a short season could be properly distributed, the producer would receive a relatively higher price for his goods, and the range of consumption would be considerably extended.

In summing up the situation from a western standpoint, it could be said that the success of the Canadian fruit trade will depend largely on good shipping facilities and a careful handling of a perishable product; neat, attractive, saleable packages; uniform and systematic grading, and a regular and consistent distribution.

*A paper read at the Dominion Fruit Conference held in Grimsby, Ont., Sept. 24, 1914.

How Nova Scotia Growers Have Overcome Trade Conditions

By A. E. Adams, Berwick, N. S.

WHILE Nova Scotia depends more on the English market as an outlet for her fruit products than any other fruit producing district on this side of the Atlantic, it is curious that she appears to be the least affected by the present unfortunate war. While other districts seem to be panic stricken, and while thousands of barrels of good apples will never be packed and marketed, Nova Scotia's apple "business is carried on as usual." The cause of this splendid confidence is to be found in its cooperative organizations working through their Central Association, the United Fruit Companies of Nova Scotia Limited.

During the first nineteen days of its operations this year (from September 11th to 30th) this organization shipped 70,000 barrels of apples and marketed them so well that good returns were obtained for the whole. In addition to this over \$70,000 was distributed to its members by October 3rd as an advance payment for fruit shipped. That is an accomplishment that the writer feels safe in stating has not been equalled by any similar organization in the Western Hemisphere.

The manner in which this organization met the threatened increase of ocean freight rates by the international combine is now a matter of history but its other transportation operations are not perhaps so well known. Its western shipments were handled with a despatch that establishes a record. The United Fruit Companies is never content to do things as others do them, and therefore when it had apples to

ship west it never considered for a moment the old method of shipping cars as they were ready and then keeping tracers after them.

It adopted other methods. On September 11th it started twenty-nine of its forty-seven warehouses packing Gravensteins. On September 12th it started a special train of twenty-nine cars from the Valley to Winnipeg.

Arrangements had been made with the C.P.R. for especially fast haulage for that train. The C.P.R. sent special men to various divisional points where delay was likely to occur, to prevent it. It was 5 o'clock in the afternoon when that train left the Valley, at 8.30 p.m. the next day it passed St. John, having negotiated the weakest link in the chain (the transference from the D.A.R. to the I.C.R. at Truro, and the divisional point at Moncton and delivery to the C.P.R. at St. John) without delay.

Engines were waiting at every divisional point to pick up this special, every divisional point passed wired advices to headquarters, and at three o'clock p.m. on the 15th, it pulled into Winnipeg. On the 15th a similar train was started with similar results and later in the week yet a third train. This splendid service not only reflects the greatest credit on the United Fruit Companies' methods but serves to demonstrate what excellent service the C.P.R. are prepared to give when shippers will cooperate with them.

The same number of cars shipped on different days could not have made Winnipeg

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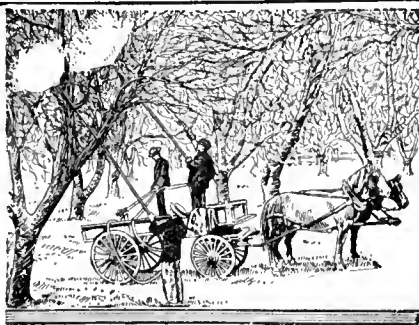
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will be given to the person who shows us an oil lamp equal to the new Aladdin in every way (details of offer given in our circular). Would we dare make such a challenge if there were the slightest doubt as to the merits of the Aladdin? **GET ONE FREE.** We want one user in each locality to whom we can refer customers. To that person we have a special introductory offer to make, under which one lamp is given free. Write quick for our 10-Day Absolutely Free Trial Proposition and learn how to get one free.

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in less than 10 days and possibly 13 or 14 days. The effect on the fruit in box cars during the hot fall weather of these extra days is too well known to need description, and the saving in value of perishable products by quick transportation and expeditious handling is beyond estimation.

With its transatlantic shipments the United Fruit Companies has also done much. This year great activity is being displayed in the direction of chartering special fruit boats.

At the present moment the Central Association has under charter the following steamships:

S.S. "Boston," now on way to Glasgow.

S.S. "Viator," destination to be settled later.

S.S. "Katie," destination to be settled later.

S.S. "Annetta," destination to be settled later.

S.S. "Amelia," destination to be settled later.

S.S. "Bella," destination to be settled later.

S.S. "Vincenzo Di Giorgio," destination to be settled later.

These steamers will be used by the United Fruit Companies to place cargoes of fruit on markets that require supplies when the regular lines will not be available, a part of the system of market regulating practised by the Central and which was fully explained in The Canadian Horticulturist some time back.

The schooner "Silver Leaf" is also under charter to The United Fruit Companies for use in the potato trade.

New Brunswick

This province is awaking to the fact that it is very favorably situated for the production of such fruits as apples, strawberries, raspberries and cranberries. This is especially true of the southern portion of the province, where the proximity of the sea ameliorates the severity of the winter, and where the more tender varieties of plums, pears and cherries have been grown. During the past four years one hundred thousand young apple trees have been set out in the province.

The annual report of the provincial horticulturist, Mr. A. G. Turney, which has been issued recently, shows that the operations of the illustration orchards have proved successful, as they have been operated at a profit. Part of an orchard in Lower Cloverdale, Albert County, was taken over in 1911, and one hundred and fifty-two dollars was expended on it in spraying, plowing and fertilizing. The harvesting and marketing of the crop, and six per cent. interest on the value of the orchard, amounted to five hundred and sixty-nine dollars more, a total of seven hundred and twenty-one dollars. The net proceeds of the sale were one thousand two hundred and sixty-eight dollars, showing a clear profit of five hundred and forty-six dollars, after paying interest on the value of the property and all expenses. In 1912 the expenditure was four hundred and sixty-two dollars, and the revenue seven hundred and three dollars, showing a profit of two hundred and forty-one dollars. In 1913 the expenditure was three hundred and four dollars, and the revenue six hundred and eighteen dollars, showing a profit of three hundred and fourteen dollars, or one hundred and four dollars an acre. On the remaining four acres of the orchard the owner made a profit of seven hundred and two dollars in 1911, one hundred and twenty-four dollars in 1912, and five hundred and ninety-four dollars in 1913.



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Fruit Packages and Government Regulations*

P. J. Carey, Dominion Fruit Division, Toronto, Ont.

SECTION 326 of the Inspection and Sales Act allows in addition to the two specified sizes any size of berry box, providing that the word "short" be stamped on the side of the box. This has been shown to be very unsatisfactory to all concerned inasmuch as it has encouraged placing on the market many different sizes. It has also been shown that any designation stamped on the side of a package means nothing to the consumer generally and only gives an opportunity to the unscrupulous dealer or grower to take undue advantage of the consumer.

It seems advisable then that two sizes and two sizes only be allowed by law, full size and half size. The present sizes are four-fifths of a quart and two-fifths of a quart. The wholesale men say that the sizes should be a full quart and a pint. The growers say that the four-fifths and two-fifths sizes are good enough for them.

BASKETS

The law as it stands specifies four sizes of basket, viz., fifteen quarts, eleven quarts, six quarts, and two and two-fifths quarts, but it also provides that any size may be used if capacity of basket is stamped on the basket. As in the case of berry boxes, but to a greater extent, this has resulted in the placing on the market of all sizes of baskets. The stamping on the side of baskets is often very indistinct, and in any case means nothing to the consumer, who is entirely at sea as to what constitutes the lawful size. The fifteen quart size and the two and two-fifths size are very little used, the eleven quart and the six quart sizes fill the bill for the great bulk of basket fruit. The wholesale trade seems unanimous in recommending that the sizes between the six quart and the eleven quart be eliminated and a number are in favor of the smaller baskets being made one-half of the full size, that is five and one-half quarts.

It would seem desirable then that the two baskets for general use should be either eleven quarts and six quarts or eleven quarts and five and one-half quarts. In the case of large peaches, three tiers cannot be placed in an eleven quart basket, and some growers are using a nine-quart size, placing in two tiers. I submit that in all fairness to growers, dealers and consumers, if a special basket is allowed to hold three tiers of large peaches it should be of such a size as to still hold eleven quarts. Uniformity in sizes of packages should be a matter of first consideration.

STRENGTH OF PACKAGE

Many of the baskets on the market are very frail and poorly made, resulting in great losses to growers and handlers of fruit. It is desirable that the attention of manufacturers should be called to this and something recommended as to strength of package and number of nails used in making same.

PROPER FILLING OF BASKETS

Many complaints have been made by the trade generally of the practice of under-filling the baskets. It is not an uncommon occurrence to see baskets not more than two-thirds full. This is becoming a serious source of annoyance as well as loss to both the dealer and consumer. Inspectors have done what they could to discourage this practice, but of course have no jurisdiction to deal with the matter in the way of prosecutions. It is agreed by all branches of the trade that there should be some en-

actment by law in order to bring about the necessary improvement along the line of better filling of fruit packages. It seems desirable that a clause should be inserted in the Act requiring that all packages of fruit offered for sale should be properly and well filled, and in cases where there was evidence of slack filling of packages Inspectors would have the right to weigh or measure the contents of such packages in order to ascertain whether there was a violation. It is believed that the moral effect of such a law being in force would go a long way in correcting the trouble, and prosecutions would be few in number.

THE APPLE BOX

The Canadian apple box 10in. by 11in. by 20in., and the Western apple box have been well tried out side by side, both in the matter of packing and marketing, and there seems to be but little choice in the two boxes. Either one will fill the bill

PEAR BOXES

As the pear boxes used for export are only carriers and fruit does not reach the consumer in the original package, and as special boxes are used by the different shippers in order to insure the safe carrying of fruit, it would be difficult to fix a uniform pear box for both export and domestic trade, but it is desirable that a uniform pear box for domestic markets should be fixed by law. Whatever size of pear box is adopted the length and width should be the same as the apple box.

PEACH PACKAGES

Every attempt that has been made on the Toronto market at least to displace the basket by the introduction of any other style of peach package has failed, perhaps not on account of the superiority of the baskets, but because the dealer seems suspicious of any new package. So far, it seems to have been a costly experiment for the man who attempts to introduce a new fruit package.

Canadian Apples in South Africa

W. J. Egan, Canadian Trade Commissioner, Cape Town, S.A.

The Canadian apple is looked for in South Africa from early October to December 15, at the latest. After that date the South African fruit is on the market in large quantities.

The good reputation held by Canadian apples in this market received a decided setback last year owing to the arrival at this port of some badly graded Ben Davis apples, and a particularly poor lot of Golden Russets. It is unfortunate that these apples should be allowed space on a service that, owing to the time limit of the market, is limited to a capacity of fifteen thousand barrels at the most, and particularly when all that could be sent of the better fruit would find a ready market at top prices.

An inspection of the Canada-Cape steamers on arrival last year showed that all Canadian fruit sent on consignment was good fruit, well graded, properly packed, and made good prices. The fruit which was the cause of the trouble was purchased in Canada by South African dealers. The fruit did not sell well, with the result that the anticipated profit on the good name of Canadian apples was not realized, and it helped to keep down the bidding on the better fruit.

The apple which will meet with a good sale in South Africa is a hardy, well colored red apple, medium size, in one and two grades. Number three grade should not be shipped. The fruit must of course



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A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse, but, I didn't know anything about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't alright."

Well, I didn't like that. I was afraid the horse wasn't "alright" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see, I sell my Washing Machines by mail. I have sold over half a million that way. So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in six minutes. I know no other machine ever invented can do that without wearing the clothes. Our "1900 Gravity" Washer does the work as easy that a child can run it almost as well as a strong woman, and it doesn't wear the clothes, fray the edges nor break buttons, the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

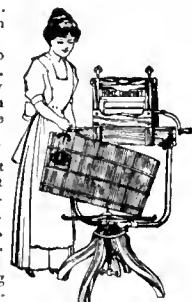
Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight, too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 to 75 cents a week over that on washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50c a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me personally:
B. T. MORRIS, Mgr., 1900 Washer Co.,
357 Yonge Street, Toronto, Ont.
Factory: 79-81 Portland St., Toronto, Ont.



Our "Gravity" design gives greatest convenience, as well as ease of operation with quick and thorough work. Do not overlook the detachable tub feature.

*A statement submitted at the recent Dominion Fruit Conference in Grimsby, Ont.



Members of the United Fruit Companies, Ltd., of Nova Scotia, as They Gathered During the Summer for Their Two Days' Annual Meeting at Berwick, N. S.

be well packed, sound and healthy in every way. Apples with scab or diseased in any way will not be allowed into the country.

During the short season for Canadian and American apples on this market, a great many thousand boxes of Washington apples are sold. One firm alone handled fourteen thousand boxes, which consisted for the most part of Wine Saps, Rome Beauties, Jonathans, Spitzenbergs, these varieties being very popular. It is claimed that these apples mature more quickly than eastern Canadian apples and for that reason they arrive here at the end of October in much better condition than eastern apples do at the end of November. If apples from the State of Washington can be marketed to such good advantage it would seem that British Columbia fruit should also find a ready market. One dealer stated in an interview, "There is no reason why we should not be buying all our apples from British Columbia instead of from Washington."

The British Columbia packers know the conditions under which Washington fruit is packed for export, and the kinds mentioned will show them at once which of their own fruit would find a sale here. Some trial consignments to South Africa would surely create a demand for the high grade British Columbia boxed apple, which would mean a permanent market. If arrangements can be made for space in the cold storage chambers on the Canada-Cape steamers from Montreal, the British Columbia apple should be shipped across Canada in refrigerator cars for immediate transfer to the steamer. In connection with possible consignments to South Africa, there is on file at the Department of Trade and Commerce, Ottawa a list of firms who would give every attention to consignments.

The imports of fresh apples and pears from Canada by New Zealand during the last fiscal year were over double those of the preceding year, amounting to £15,167,

as compared with £7,293 in 1912-13. No other kinds of fruit were imported into New Zealand from Canada to any considerable extent.

Packages for marketing fruit should be procured in good time.

Liverpool Sales Organizations*

A. E. Adams, Sec'y, United Fruit Companies, Ltd.,
Berwick, N. S.

COOPERATION lessens considerably the cost of getting our products to the consumer. Let me give just one illustration of the terrific toll that is being taken out of the fruit of the unorganized growers. At our annual meeting, Mr. J. N. Chute reported on conditions in Liverpool as follows:

"Liverpool presents problems totally different and much more difficult than London. Here are organized forces that are really formidable. Their rules and regulations have been framed entirely in their own interests and at the expense of the shipper.

"There are three associations, the broker's, the importer's and the buyer's. It is of course obvious that none of these associations look after the interests of the shippers. The various organizations are composed as follows: The Brokers' Association consist of some seven brokerage firms who own the building, and who being established for a great many years, consider they have a monopoly of the fruit auctioneer business of Liverpool. They are very wealthy men and are willing to advance any amount of money to responsible men who can secure apples for them. They make a flat charge of two per cent. on gross sales and fourteen cents a barrel.

"The Importers' Association is composed of men like Simon Shuttleworth, Pritchards, Hamilton and others, who go out to various countries and secure fruit. In consideration of the fact that the brokers advance the money with which these men conduct their business they are compelled to put all their fruit through the sales room, the

*Extract from a paper read at the last annual convention of the Nova Scotia Fruit Growers' Association.

Last Year's Prices for Nova Scotia's Fruit

The United Fruit Companies of Nova Scotia Ltd. obtained the following prices last year for the fruit handled for their members. The cost of handling the fruit by the Company was only four cents a barrel:

	No. 1	No. 2	Coop. No. 2	No. 3
Gravensteins, general average	\$3 26	\$2 83	\$1 50	\$1 11
Gravensteins, complete average	3 36	2 81	1 98	1 12
Blenheims	2 52	2 01	1 50	1 02
Ontario	2 22	1 75	1 20	1 15
Kings	2 84	2 32	2 10	1 35
Ribstons	2 03	1 75	1 00	70
Emperors, general average	2 60	2 10	1 53	1 14
Emperors, complete average	2 81	2 43	1 53	1 14
Wolf Rivers, general average	2 56	2 10	1 20	1 08
Wolf Rivers complete average	2 67	2 10	1 20	1 16
Pewaukee	2 20	1 70	1 68	1 30
Bishop Pippins	3 15	2 83	2 02	1 25
Greenings	3 00	2 42	1 65	1 31
Wealthy, general average	3 27	2 20	1 72	1 21
Wealthy, complete average	3 57	2 80	2 00	1 15
Wagners	3 05	2 42	1 72	1 25
Seeks	2 87	2 30	2 05	1 60
Talman Sweets	2 20	1 80	1 26	1 18
Pomme Gris	3 50	2 60	1 63	1 60
Red Starks	3 40	2 30	2 10	1 80
Starks	3 60	3 02	2 35	1 75
Mann	2 76	2 16	1 90	1 47
Vendevere	2 70	2 14	1 80	1 30
Golden Russets	4 60	3 80	3 10	2 55
Baldwins	3 51	2 80	2 20	1 60
Northern Spys	8 50	2 85	2 15	1 40
Red Russets	3 21	2 61	2 10	1 70
Fallawaters	3 10	2 54	2 00	1 60
Ganos	3 60	3 02	2 90	2 37
Ben Davis	3 51	2 83	2 43	1 73
Salomes	3 75	3 02	2 93	2 20
Coopers Market	4 00	3 50	3 30	2 60
Nonpareils	4 15	3 60	2 73	2 50

brokers in turn agreeing not to sell for anyone for a less commission than the brokers charge, viz., five per cent., plus eighteen cents a barrel, all the importers agreeing to abide by the same terms.

The Buyers' Association is composed of the wholesale men who buy the fruit in the sales room. These men contended in their own interests that no one but the original members should be admitted to the sales room without being elected by their association. Firms that are heavy buyers have repeatedly tried to get in but without avail. This is naturally so when these people are charging one to two shillings a barrel for buying. In consideration of their having the monopoly of the room they agree not to buy in any other auction room.

"These are indeed a splendid set of organizations, all so perfected as to absolutely assure their own interests. The importers to get the farmers to send the fruit to the market where it shall be doubly tolled by brokers and importers, and a third organization agreeing to buy the fruit providing no outsider is permitted to interfere with the prices. The parties naturally look with admiration on their splendid structure and the mill works well, netting the first two organizations five thousand dollars a day. These organizations do not look with favor on our cooperative organization for the simple reason that it seriously interferes with the working of their machine."

We have seriously interfered with this set of organizations. Last year they held a joint meeting and agreed to grant the United Fruit Companies special terms, which they assured us could be obtained

by no other shipper or combination of shippers. It was unnecessary, however, for us to accept their terms, as we found another way of marketing our apples in the north of England.

Fruit Inspection in the Prairie Provinces

G. W. Baxter, Chief Fruit Inspector for Eastern Ontario and Quebec

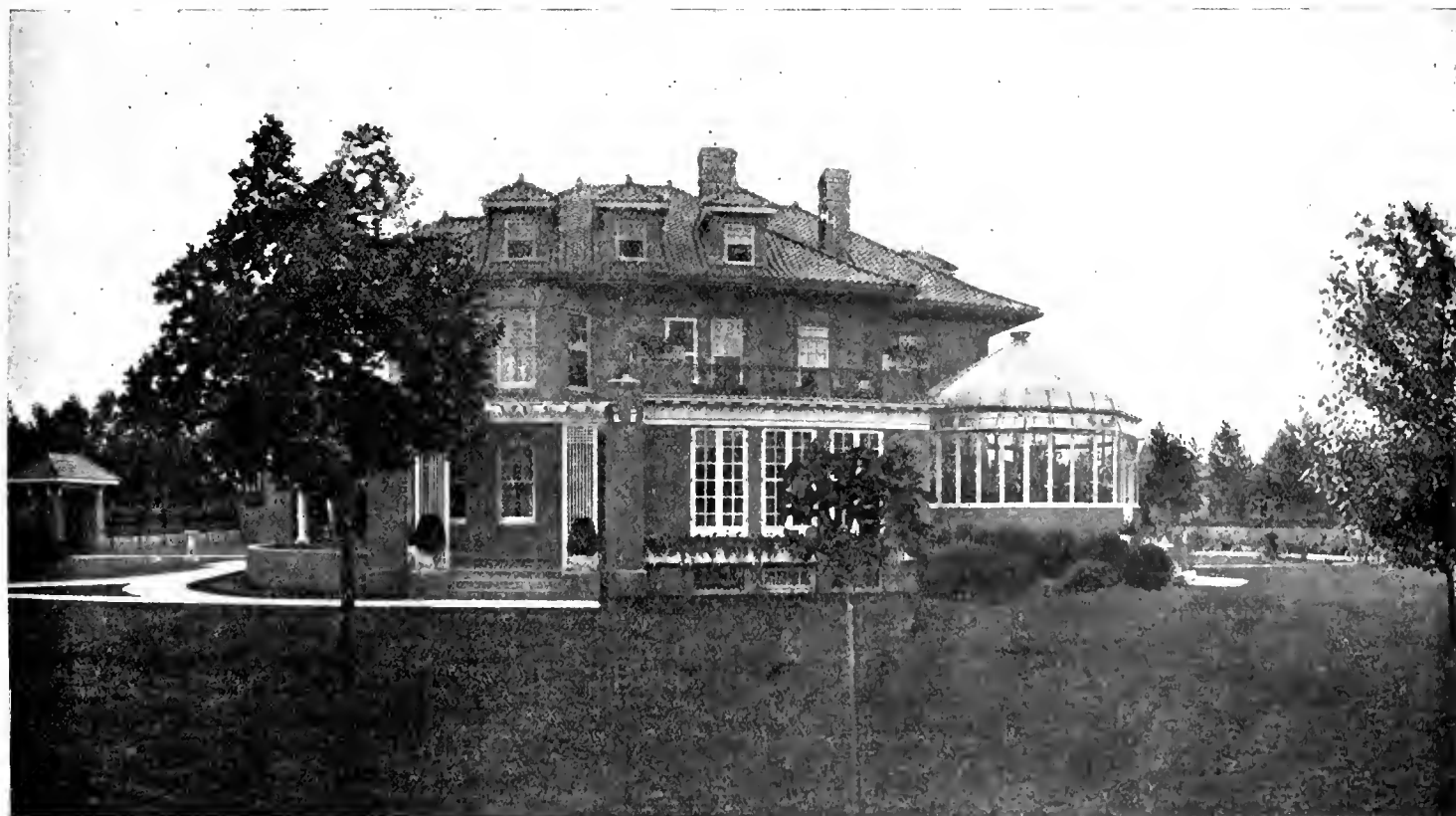
THE prairie provinces, extending from Port Arthur to the western boundary of Alberta and British Columbia, and from Edmonton to the international boundary, present exceptional features to the fruit inspector, as they are the main Canadian market for imported fruit, and therefore the market in which competition between American and Canadian fruit is most keen. The district is divided into nine sub-districts—Port Arthur, Winnipeg, Brandon, Regina, Medicine Hat, Lethbridge, Calgary, Edmonton and Saskatoon. A permanent inspector is located at Winnipeg, and one at Calgary, while temporary inspectors are stationed at the other points during the busy months between August and December.

Until apples commence to move in car-load lots, it is seldom necessary for the inspector to leave the central point, as practically all other varieties of fruit are diverged from these centres in less than car lots, and can be inspected before being re-shipped. Whenever possible, the wholesales have

cars consigned to the most convenient point and reshipped from there, as this means to them a saving of freight charges and a quicker delivery. The inspectors receive information as to the movement of these cars through the courtesy of the wholesalers, railway officials, and, in the case of imported fruit, from the customs official.

The Inspection and Sales Act does not require that fruit packed in "open" packages shall be graded. The only requirement is that it shall not be over-faced, and it is pleasing to note that the old custom of placing the larger and better fruit on the top and bottom of the package is practically a thing of the past.

The inspection of apples and pears constitute the greater portion of the work. These are practically all packed in "closed packages," which are required by the Act to be branded with the name and address of the packer, the variety of the fruit, and one of four grade marks: Fancy, No. 1, No. 2 and No. 3. The three former grades are defined in the Act and it is the duty



TEA ROOM WITH CONSERVATORY ATTACHMENT

ANY attractive, cozy room, providing it contains a tea table in a more or less out-of-the-way position, is eligible, so they say, to be called a tea room. The term it would seem is a broad one—its pleasurable inclusions many.

It happened that this particular tea room is so sunny with its group of long casement windows, that it might equally well be called a sun room.

Opening directly from it by glassed doors, is the plant and bloom-filled conservatory. In the centre is a fountain—

a choice one of rare treatment. The complete effect from the tea room is best described by the word, alluring.

But that isn't all it's soothing, to tired nerves, is all that restful greenery with its spots of bloom color.

To daily chum with the plants and do little things for them, will turn many a lagging Winter hour into quite the most joy-receiving one of the day.

All of which has much to do with the reason for our building so many conservatories.

U-BAR GREENHOUSES

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Protect Your Fruit

BY USING

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APPLE BARREL PAD

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Temple Court, Liverpool, Eng.

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FRUIT MACHINERY CO.

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Manufacturers of Fruit Sprayers

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Apple Evaporating Machinery

Our complete **POWER SYSTEMS** for evaporating, when installed by our experienced millwrights are the most practical, sanitary and labor saving to be found anywhere. Our prices and terms always reasonable.

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GLASS GARDENS

"MADE IN CANADA"

With everyone interested in the "Made in Canada" movement we feel that we are particularly fortunate in being able to offer just at this time, glass gardens and greenhouses that are entirely "Made in Canada" by a Canadian Company.

Of course the real question is "are they made as well in Canada?"

The knowledge and experience of these men, who are connected with the Company, assure that the character of its work will be equal to any:

Mr. Isaac Cassidy, formerly of Lord & Burnham Co., Mr. R. L. D. Ryshire, formerly Canadian Manager of the Parkes Construction Co., Mr. W. J. Keens, of Toronto, is President, Dr. J. M. Baldwin, late Vice-President of Toronto Horticultural Society, Vice-President, and Mr. C. M. Baldwin, Secretary-Treasurer.

It has already under construction two large houses for J. H. Dunlop, of Richmond Hill, and private gardens for Mrs. G. A. Cox and Mrs. W. R. Williams in Toronto.

Further particulars or plans and estimates will be gladly furnished to anyone interested or they will be welcome to view our methods at the factory.

GLASS GARDEN BUILDERS, Ltd.

201 Church St., TORONTO

of the inspector to see that the fruit is up to the requirements of the grade mark on the package. In the matter of imported fruit the importer is required to brand the packages in the same way as the packer in Canada, and is responsible for the grading of the fruit.

In the Province of Alberta and western Saskatchewan, the greater portion of the fruit is received from British Columbia and the north-western states, and all such fruit is packed in boxes or crates. Barrels are never used. The careful packing and grading of the fruit from these districts makes the work of inspection much easier than when packed in barrels.

In the Provinces of Manitoba and eastern Saskatchewan the great bulk of the fruit is supplied from Ontario, Nova Scotia and the central states. The principal package is the barrel, although it is worthy of note that the quality of boxed apples from the east, and especially from Ontario, has greatly increased during the past three years.

More time is required to inspect fruit in barrels than when put in boxes, and on account of the pressure which has been put upon the fruit in packing, great care must be exercised in examining the contents, as any injury to the fruit might lessen its keeping quality. Although it is the first duty of inspectors to see that fruit is packed in accordance with the requirements of

the Act, it is also their duty to do everything possible to promote the interests of the fruit industry. The opportunities for this are probably greater in this district than in any other, because of the fact that more shippers have no opportunity of seeing their fruit at the receiving end. Information with regard to the loading of barrels, the carrying qualities of the different varieties, the most suitable styles of packing, the conditions of the market and many other details of the work are regularly forwarded to the Fruit Branch at Ottawa, and transmitted to the shippers.

The work of organization and inspection has for the past two years been in charge of the writer, who has been transferred this season to the Lake Ontario district to fill the vacancy caused by the death of W. W. Brown. Mr. A. H. Flack, who has had many years of experience in the growing and packing of fruit in British Columbia, and who has also been fruit inspector in the cities of Edmonton and Vancouver is now in charge of the work in the prairie provinces, with headquarters at Winnipeg. The following is a list of the inspectors under his supervision:

Winnipeg, J. Carman; Winnipeg District, C. Weld; Brandon, J. H. Fleming; Regina, J. W. Clement; Medicine Hat, F. Metcalf; Lethbridge, J. C. McCauley; Calgary, M. P. McNeill; Edmonton, F. H. Steele; Saskatoon, R. J. Wallace.

Fruit Jobbers are Organized

R. M. Winslow, B.S.A., Victoria, B.C., Sec'y, B. C. Fruit Growers' Association

Aside from competition, the greatest feature of fruit distribution in the Canadian prairies is the attitude of the fruit jobbing trade to our product. The Fruit Markets Commissioner connected with the Horticultural Branch of this Department reports to me seventy-two jobbing and brokerage houses handling fruit in the three prairie provinces. Twenty-nine of these houses are more or less independent of each other and one of the twenty-nine is said to be controlled by the Ontario fruit growers. British Columbia fruit shipping concerns have a total of eight established jobbing and brokerage houses, and of the remaining thirty-five houses, twenty-six are closely affiliated with one organization known as the Nash House or equivocally "The American Ring," while the remaining nine are the Scott Houses, which are said to be closely affiliated with the ring. At any rate these thirty-five houses dominate the situation in Alberta and Saskatchewan, where British Columbia fruit is largely marketed.

These houses, it is reported are owned by American capital, controlled by Americans, and affiliated with similar fruit distributing houses on the American side. One organization reported to be affiliated with the Nash House is one of the largest fruit shippers in the northwestern states. The total capitalization of the Canadian Nash Houses is said to be about two million dollars. These houses have buying agencies in Calgary, Edmonton and Alberta, through which most of their British Columbia, and many of their American purchases are made.

This organization has grown rapidly from comparatively small beginnings of a few years ago, and its rapid growth has been a matter of great concern to British Columbia growers. Most certainly the Ring Houses do not encourage less than carload shipments, nor do they have much sympathy with unstandardized fruit.

Practically all of the fruit jobbing houses in the prairie provinces are more or less opposed to handling Ontario fruit if there is any prospect of handling western fruit.

This prejudice is probably nothing more than a matter of fruit packages, but at any rate it is a strong factor in the constant approachment of Pacific Coast fruit, whether Canadian or American, into sections which had largely been supplied by Ontario a few years ago.

Experience has shown that British Columbia has little to fear from this organization, but the same experience amply demonstrates that there is safety only in a large and equally strong organization of our own. That requirement is very largely met by the formation of the Okanagan United Growers, which is the central selling agency of nine cooperative packing associations.

RASPBERRY SHIPMENTS.

The Mission-Hatzig section in the Lower Mainland is the principal raspberry district we have, and marketed this year about 24,000 crates. Up to this year, none of its crop had been handled by houses of the American Ring, which had gotten their supplies from Washington in carloads. To get a better distribution and to displace the American raspberries, it was necessary to put our own raspberries into carloads, and to this purpose, the growers of this province formed the Fraser Valley Fruit Growers' Union, and put their own representative into Calgary to oversee the marketing of their fruit. They shipped eleven straight carloads of raspberries by express to the American House and got excellent satisfaction. Each car displaced an American car. The growers are well satisfied with the results and intend to continue and develop and perfect their organization for next year along the same lines.

The prairie farmer demands cheap fruit. He is not particular as to grade, providing the fruit is sound, of reasonable quality and true to description. He has no use for fancy colors, fancy packing, or high prices. The American C. grade meets this demand, which is at once lower than our No. 1, and higher than our No. 2. To meet the C. grade on equal terms, the Okanagan United Growers are putting out a No. 2 grade which is much superior to our old No. 2.

With all odd varieties of apples, there may be only one grade, all marked No. 2 for this trade. It shows every prospect of being the best possible method of meeting the demand at a remunerative figure.

Putting low grade cooking apples into boxes is an unnecessary expense and experiments are being made in marketing all this low grade stuff in crates, effecting a considerable saving in the cost of package and packing. There is a definite demand for such commodities, which has heretofore been supplied very largely by barrelled apples and a crate weighing about eighty pounds seems to fit the conditions.

Still another problem is the supply of fresh tree-ripened soft fruits to consumers over one hundred to twelve hundred miles distant. Fruits shipped in carloads by freight must be picked too green to preserve their full quality. Our peaches, apricots, etc., marketed in carloads, by freight, met similar carloads from the American side and prices have, as a rule, been unsatisfactory. The growers have been urged to develop a "direct to retailer or consumer" business, by express, for which low express rates have been secured. This is already becoming an important item. In 1911 the Dominion Express Co. shipped 2,785,000 pounds of vegetables. This increased in 1912 to 4,330,000 pounds, and in 1913 increased still further to 5,204,000 pounds. 1914 shipments will show a similar increase, indicating a great development in the direct to retailer and consumer trade.

The cooperative organizations marketing British Columbia fruits and vegetables this year are as follows:

Fraser Valley Fruit Growers' Union, Mission and Hatzic Rhubarb Growers' Association, Chilliwack Farmers' Exchange, Ashcroft District Potato Growers' Association, Okanagan United Growers, Ltd., Vernon, with affiliated organizations at Tappen, Salmon Arm, Enderby, Armstrong, Vernon, Kelowna, Peachland, Summerland, and Penticton. Grand Forks Fruit Growers' Association, The Kootenay Fruit Growers' Union, Ltd., Nelson, Creston Fruit Union, Creston.

There are besides, other concerns which are cooperative to the extent that they are owned and controlled by the orchard owners, but not on a strictly cooperative basis.

British Columbia has solved the problem of meeting American competition in wholesale and jobbing channels of fruit trade by growers organizations, making carload shipments and meeting American trade on the same basis. The same result has not been achieved to any extent by Ontario growers.

Some British Columbia organizations, usually limited companies and partnerships, are doing their own distributing to retailers in the prairies, but this is yet limited in extent and likely to continue so at least for the immediate future.

A Large Orchard.—On Sunday, Aug. 16th I visited a friend and horticulturist on the Island of Montreal. For tea we had fresh picked strawberries and raspberries. The patch which they came from I visited. There was quite a shipment of each ready to pick. Mr. C. P. Newman said he got fifty cents a quart for his last picking of raspberries last year. He will have about four thousand barrels of apples this season. This, I think, will surprise some fruit men in the West to find one man on the little Island of Montreal raising such a quantity. No shipments of apples have gone forward to England yet, but, I am glad to know, there are some inquiries for our very noted apples.—A. H. Wartman, Montreal, Que.

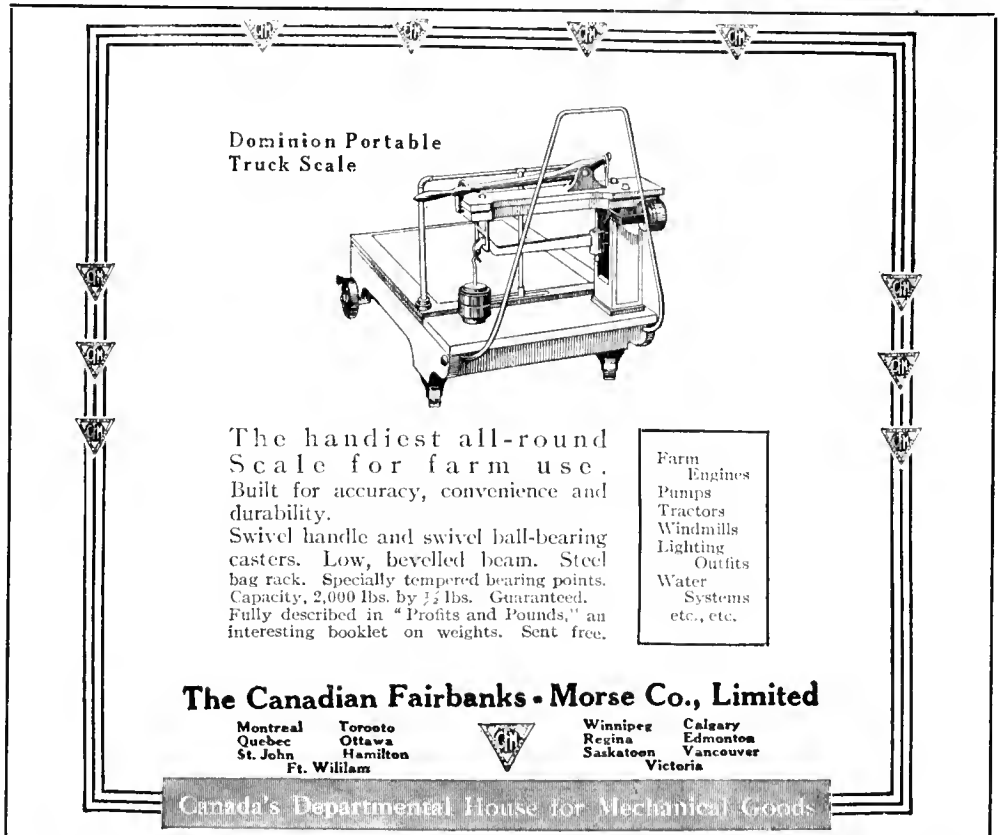
I would like to see Canada adopt the same size apple box that has been made the standard size for the United States. There



**Peerless
Guaranteed Fencing**

Strongly made and closely spaced—making it a complete barrier against large animals as well as small poultry. Top and bottom wires No. 9—intermediates No. 12 wire—made by the Open Hearth process which time and other tests have proven to be the best material made for the manufacture of wire fencing. Send for literature. Ask about our farm and ornamental fencing. Agencies nearly everywhere. Live agents wanted in unassigned territory.

The Banwell-Hoxie Wire Fence Co., Ltd., Winnipeg, Man., Hamilton, Ont.



**Dominion Portable
Truck Scale**

The handiest all-round Scale for farm use. Built for accuracy, convenience and durability. Swivel handle and swivel ball-bearing casters. Low, bevelled beam. Steel bag rack. Specially tempered bearing points. Capacity, 2,000 lbs. by 55 lbs. Guaranteed. Fully described in "Profits and Pounds," an interesting booklet on weights. Sent free.

The Canadian Fairbanks • Morse Co., Limited

Montreal Quebec St. John
Toronto Ottawa Hamilton
Ft. William
Winnipeg Regina Saskatoon
Calgary Edmonton Vancouver
Victoria

Canada's Departmental House for Mechanical Goods

was a time when the Americans used to send their culls in apples and other fruit to Canada, but now they send us their best,

and we should meet them with just as good fruit and as full a measure.—R. Brodie, Montreal, Que.

Market for Canned Fruits and Vegetables

In accordance with cabled instructions from the Minister of Trade and Commerce, the Canadian Trade Commissioners resident in the United Kingdom, have conducted an inquiry into the conditions of the demand for canned fruits and vegetables in that country, with special reference to the possibilities for increased supply from Canada. The results of this inquiry have now been submitted in the form of a report, prepared in the office of Mr. Harrison Watson the Trade Commissioner at London:

NO EXTRAORDINARY DEMAND

All the London authorities consulted state that there has so far been no indication that the requirements of the United Kingdom in canned fruits and vegetables will be greater than in ordinary years, and several firms mention that whereas immediately after the declaration of war there was a small amount of panic buying of canned goods in common with other commodities, the trade has experienced since

then a distinct decrease from the usual demand.

The purchase of any considerable quantity of these goods as supplies for the Army and Navy would obviously cause some special demand but the trade does not anticipate that they are likely to be called for to any large extent. The future depends so greatly upon the course of events that dealers are unwilling to make any forecast, but the general opinion appears to be that unless some development at present totally unexpected should occur, there is some likelihood of a falling off rather than an increase in the demand from the ordinary public for both canned fruits and vegetables. The chief reason for this is that neither canned fruits nor vegetables form a part of the staple food of the population of the United Kingdom, in which respect they differ essentially from canned meats and salmon. Indeed, canned fruits are mainly regarded in the light of a luxury.

FREE LAND FOR THE SETTLER IN NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

H. A. MACDONELL
Director of Colonization
Parliament Buildings., TORONTO
HON. JAS. S. DUFF
Minister of Agriculture
Parliament Bldgs., Toronto

As regards fruits, the only line in which Canada has captured any considerable trade is in gallon apples, which really provides the bulk of the Canadian business in this country in canned fruits and vegetables, the California packers of peaches and pears having obtained a hold on this market with which it has so far been difficult to compete.

The Strawberry Root Weevil in British Columbia, with Notes on other Insects Attacking Strawberry Plants in the Lower Fraser Valley, is the subject of Bulletin No. 18 of the Second Series of the Central Experimental Farm, Ottawa. This publication, which has been prepared by Mr. R. C. Treherne, B.S.A., is based upon a careful study of the insect carried out in 1912 and 1913, by the writer, under the supervision of Dr. C. Gordon Hewitt, Dominion Entomologist. The Strawberry Root Weevil constitutes the greatest obstacle to the successful growing of strawberries in certain sections of the Lower Fraser Valley; the investigations carried out demonstrated that the control

of this insect was dependent upon cultural methods and the system of cropping, and for this reason these aspects of the problem are fully discussed.

British Fruit Imports

That there is an almost unlimited demand for cheap fruit in the United Kingdom is illustrated by the enormous quantities of bananas which are now sold all over the country, their appearance having created an entirely new demand. Fruit from Canada and Australia, South Africa and the West Indies is sold throughout the country in quantities which seem to be limited only by the carrying capacity of the cold storage in the steamships.

The total value of fruit, not liable to duty, imported to the United Kingdom in 1913 was as follows:

From—	
British possessions	£ 1,671,955
Foreign countries	10,406,000

Total

APPLES

Of all the fruits which are the subject of international trade, apples represent the greatest aggregate value, though bananas appear to be rapidly overtaking them. The following table shows that forty-seven per cent of the apples imported to the United Kingdom in 1913 came from British Possessions:

IMPORTS OF APPLES

From—	
Canada	£ 730,036
Australia	296,245
Channel Islands	11,844
Other British	1,958
Total British	£1,040,083
United States	£1,000,074
Other foreign	190,213
Total foreign	£1,190,287
Total	£2,230,370

The exports of apples from Canada during the eleven months ending February, 1914, were 889,932 barrels, value \$3,201,834.

The following table shows the imports of pears to the United Kingdom in 1913:

From—	
Canada	£ 32,169
Australia	30,650
Cape of Good Hope	20,929
Other British	2,498
Total British	£ 86,246
United States	£232,470
Belgium	162,171
France	99,765
Netherlands	52,707
Other foreign	16,725

Total foreign

Total

The exports of fresh fruit from South Africa in 1913 amounted in value to £54,315, and included grapes £12,270, oranges £11,530, pears £9,674, plums £5,961, peaches £4,090, naartjes £2,217, and pine-apples £1,687.

Boxes vs. Barrels

F. Dane, Canadian Trade Commissioner, Glasgow, Scotland

Interviews with importers, brokers, and the retail trade indicate that the box package is becoming a more important factor in the apple trade than formerly. Which is the better package cannot be answered offhand. One class of package suits one



Every farmer should hire him

You pay him only \$3.00 for 365 full 24-hour days a year—and nobody knows how many years he'll last, for he has never been known to wear out.

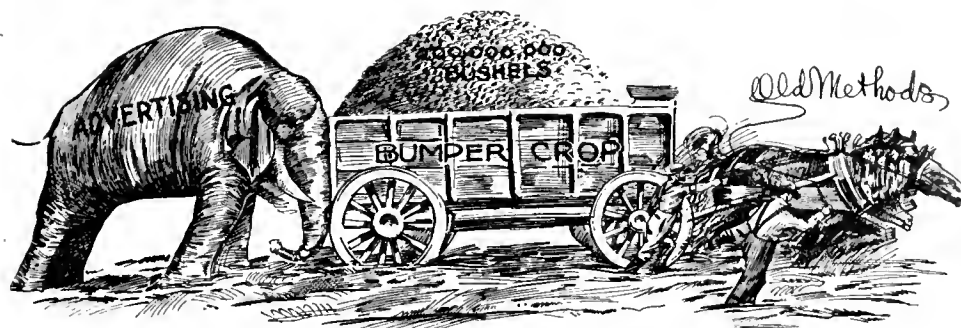
His board amounts to a drop of oil every twelve months—that's all the pay he asks.

His work is getting the farm hands in the fields on time, starting the before-breakfast chores on time, and telling the right time all day so the women folks can have the meals on time—these are easy jobs for him.

Big Ben stands seven inches tall. He is triple-nickel plated and wears

an inner vest of steel that insures him for life. His big bold figures and hands are easy to read in the dim morning light. His keys almost wind themselves. He rings for five minutes straight, or every other half minute for ten minutes as you prefer.

The next time you're in town just drop in at your dealer's and ask to see Big Ben. If your dealer hasn't him, send a money order for \$3.00 to Westclox, La Salle, Illinois, and he'll come to you, transportation charges prepaid, all ready for work. Hire Big Ben for your farm and he'll prove the promptest hired man on the place.



Now that the tremendous power of Advertising is being applied we will see the "bumper" crops pushed out of the rut.

trade while another class of package is looked for by a different trade.

Those who follow up the matter closely say the market for the box trade is in-

creasing all the time, so that the matter is becoming one of importance for the Canadian shipper. Under normal conditions the box trade is likely to increase.

Horticultural Exhibition and Allied Convention

JUST as The Canadian Horticulturist was going to press, word was received from Toronto that it had been found necessary by the directors of the Ontario Horticultural Exhibition to cancel all arrangements for the exhibition which it had been proposed should be held this year as usual on the grounds of the Canadian National Exhibition. This sudden decision was made necessary by the announcement that the buildings of the Canadian National Exhibition have been requisitioned by the Militia Department for recruiting and drilling purposes. As no other buildings at all suitable for the purpose of the horticultural exhibition were available, there was nothing else the directors could do but announce that this year's exhibition would have to be cancelled. This is unfortunate, but it could not be helped.

FRUIT GROWERS' CONVENTION

The conventions of the Ontario Fruit Growers' Association and of The Ontario Beekeepers' Association will be held as usual. The Fruit Growers' Convention will be held November 11 to 13. The programme is as follows:

Wednesday, November 11th—2 p.m., President's address, R. Thompson, St. Catharines; address, D. Johnson, Dominion Fruit Commissioner; "Citrus Fruits and Bananas in Relation to the Marketing of Ontario Apples," by Prof. J. W. Crow, Guelph; "The Business Side of Cooperation," by F. C. Hart, Director of Cooperation and Markets Branch for Ontario.

Thursday, 9 a.m.—"Experimental Results on Peach Canker," by W. A. McCubbin, St. Catharines; "Cherry Fruit Flies and How to Control Them," by Prof. L. Caesar, Provincial Entomologist; "Pre-cooling of Canadian Fruits," by Edwin Smith, Grimsby, Ont.; "Vineland Experiment Station: Its Purposes, Aims, and Methods," by Prof. F. M. Clement, Director.

Thursday, 2 p.m.—Election of Directors. Illustrated Discussions led by well-known authorities on various important fruit topics. Question Drawer.

Friday, Morning Session, 9.30 a.m.—"Direct to the Consumer," by W. H. Bunting, St. Catharines; "The Fruit Business from the Retailers' Point of View," by D. W. Clark, Toronto; "Yields of Varieties of Apples at Different Ages," by W. T. Macoun, Dominion Horticulturist, Ottawa; "Cooperative Experiments," by Prof. J. W. Crow, Guelph.

OTHER CONVENTIONS

We had expected to be able to publish in this issue the full programmes for the con-

ventions of the Ontario Horticultural Association and of the Ontario Vegetable Growers' Association. The secretary of these associations, Mr. J. Lockie Wilson, was written to early in October and asked for copies of the programmes or particulars concerning them in order that they might be published in this issue. Mr. Wilson replied that they would be forwarded when completed, but at the time this last page went to press, October 27th, they had not been received. We presume that these conventions will be held as usual.

The Late Dr. Wm. Saunders

W. T. Macoun, Ottawa, Dominion Horticulturist

For many years before he was appointed Director of the Dominion Experimental Farms, the late Dr. Wm. Saunders took a deep interest in horticulture. On his fruit farm, near London, Ont., he experimented for years in the hybridizing of fruit, and succeeded in originating a number of valuable varieties.

Of his earlier work, the Pearly and Red Jacket (Josselyn) gooseberries have won for themselves a good reputation among fruit growers. His Saunders black currant, though in the trade for a number of years, is not so well known. His Eclipse, Magnus, Clipper, Climax, Eagle, Kerry, Success and Beauty black currants, all excellent varieties, are available to anyone who desires to grow them. His work with raspberries was mostly confined to the crossing of the red with the black cap. Many of these crosses, while heavy croppers, were not attractive in color, and while excellent for home use, did not appeal to the trade because of their dark color. The Sarah is one of the best of these, and is a most excellent variety for home use, being late, it lengthens the raspberry season. Two other early red varieties are Brighton and Count, which are very hardy and productive, the former especially being a very heavy yielding early sort. None of his grapes are offered for sale, but his Emerald, a white grape, is one of the highest quality and excellent for home use, and his Kenington is a fine white variety. At the Colonial Exhibition in 1886, the Emerald grape was considered the best of the Canadian sorts exhibited.

While director of the Experimental Farms his enthusiasm for the production of new things did not become less, and the many hours of hard work spent in his garden at the Central Farm are known only to a few who were intimately associated with him. His work with gooseberries, currants and

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raspberries was continued there. He crossed the gooseberry with the black currant, producing an interesting but sterile hybrid. Some work was also done with plums. Among ornamental plants he was especially interested in roses, and his Mary Arnott and Agnes roses, two fine varieties, are the results of his efforts. He originated some very interesting and ornamental hybrids, between the Thunberg' and Purple-leaved barberries, which are at present under test at Ottawa.

His most important work in hybridization has been left to the last. Visiting the prairie provinces frequently, as he did, he saw the need of hardy apples there, and the success of the wild Siberian crab apple (*Pyrus bacata*) at Indian Head, Sask.,

gave him the hardy material with which to work. This hardy little crab apple, smaller than a good cherry, from one half to three quarters of an inch in diameter, was used as the female parent of many crosses with hardy Russian and American apples of good size as the male. This work was begun in 1894 and continued in succeeding years. The first fruit was produced in 1899, when thirty-six trees bore, and five of these were of such size and quality as to justify their being propagated for more general test. In time about eight hundred trees were set out, a large proportion of which fruited. The largest of these first generation crosses were from one and one-quarter to one and three-quarter inches in diameter, a substantial gain in size over

the mother parent. As rapidly as possible the best were set out for test and some of these have proved very hardy, fruiting abundantly on the open prairie without protection. Among these may be mentioned the Jewel, Charles, Silvia, Prince, Tony, Robin and Elsa. So hardy are these, that fruit of these crosses has been produced at the sub-station at Fort Vermillion in latitude 58 degrees, where the temperature frequently falls to between fifty and sixty degrees Fhr. below zero.

Not content with hardy apples of so small a size, Dr. Saunders re-crossed the best of these first crosses with apples of larger size in 1904, and from this work over four hundred trees were obtained. Many of these have now fruited, some of which have produced apples two and a half inches in diameter, and of good quality, which are being propagated and sent to the prairie farms for test. It is expected that some of these will prove hardy in places where apples of this size cannot at present be successfully grown. Even should they not prove sufficiently valuable to satisfy the settlers, who would like to have apples equal to any grown elsewhere in Canada, Dr. Saunders has, at least, laid the foundation of a hardy race of apples from which probably will eventually come varieties even better than those available at present.

The love of the beautiful in nature was very strong in Dr. Saunders, and he was able to give expression to this love in his work in beautifying the Central and Branch Farms. Many countries, many botanic gardens, nurseries and seed catalogues were searched for plants and seed to test, in order to learn their value under Canadian conditions. Beginning in 1887, and continuing until 1911, he continuously endeavored to bring to Canadians from other countries, all that was best and most beautiful among trees and shrubs and flowers, and from the abundant material available he was able to plan and plant the grounds at the Central Farm especially in such a way that it is to-day one of the most beautiful places in America.

Comparatively few know of the work Dr. Saunders did in planning and planting the trees and shrubs along the Government Driveway in Ottawa, but it should be recorded here that a large proportion of the driveway between St. Louis Dam and the Rideau River was planned and planted by him.

Canadian horticulturists have lost a warm friend in Dr. Saunders. He was a true amateur horticulturist, the love of the work standing out in everything he did. He was a member of the Ontario Fruit Growers' Association from its early years, and was one of the few enthusiasts who kept the Association in existence before the commercial side of horticulture had developed much in Canada.

British Columbia

In accordance with an arrangement between the Dairy and Cold Storage Commissioner and the Deputy Minister of Agriculture for British Columbia, Mr. Edwin Smith, who has charge of the Government Experimental Cold Storage Warehouse at Grimsby, Ont., operated by this branch, spent a couple of weeks during the summer in British Columbia conferring with local officials and fruit shippers regarding fruit transportation investigations now under way.

Arrangements were made with the head of the Canadian Pacific Railway refrigerator car service to carry on experiments in the Okanagan Valley with the use of salt

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and ice mixtures in brine tank cars for fruit shipments to be forwarded by the Okanagan United Growers, Limited, Vernon. Careful records have been kept in regard to temperature in transit, ventilation and humidity.

The raspberry growers of the Mission and Hatzic districts this year for the first time began shipping raspberries in straight carloads by refrigerator freight. Eleven carloads were thus shipped with highly satisfactory results, as the berries reached the market in a vastly improved condition, and the growers received from forty to sixty cents more than they would have secured under the old system of express shipments and individual marketing.

In pursuance of the policy of making known, the excellent quality of British Columbia fruit in outside markets, the British Columbia Fruit Growers' Association

has just issued an attractive eight-page booklet entitled "Advertising British Columbia Fruit." One hundred thousand copies were printed so as to cover a large part of our Canadian markets. Sample copies were sent to over twenty five hundred retailers of fruit, and secretaries of farmers' organizations in the prairie provinces inviting them to ask for quantities to distribute to customers. It is expected that this demand will make excellent advertising.

Consumers of fruit in Alberta and Saskatchewan are responding in numbers to advertisements in their papers inviting them to secure copies. The booklet contains much information about British Columbia fruit and will be popular among fruit users. It contains a few simple jam making and canning recipes, tells how to buy fruit, and the varieties to buy for different purposes, and the months when they are in season.

forty-nine in six days; fifty or more in ten days, under a penalty of twenty-five dollars a day for each car failed to be furnished. This is pretty severe legislation, but I venture to say, it guarantees prompt service to the shipper, for while he is also penalized the same amount for detention, there would be prompt releasing of the cars. In many other states the prompt



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Gooseberries, Red and Yellow;
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Transportation Problems*

Geo. E. McIntosh, Traffic Expert, Ontario Fruit Growers' Association, Forest, Ont.

MANY Ontario shippers take the view that freight rates west of Winnipeg are excessive, and that the blanket rate covering western Canada for the fruit shippers of the western states is an injustice, but the most serious complaints of the shippers centres on lack of railway equipment; inefficient terminal facilities, a service in transit that assures no certainty of reaching a market in proper time; delays in supplying cars; rough handling, lack of shelters, pilfering, neglect in icing cars or attending heaters, according to season, the need of a uniform express rate, assembling rates, and certain privileges now established, but not accorded the shippers of fruit. All the provinces are more or less interested in remedying these grievances, because success for one means better service for all. I would suggest, therefore, that united action be taken to solve some of these problems.

They are important. For instance, that of pilfering. From accurate information received from the shippers of Ontario last season, the fact was established that ten per cent. of their express shipments were pilfered. This meant a loss of approximately ten thousand dollars on local shipments, and yet it is not so much the monetary loss, as the dissatisfied customer, that the shipper fears, because the industry suffers thereby.

The supplying of cars is another serious problem, but the fault is not all upon the

railways. Consignees do not release cars promptly, and on the other hand railway terminals are not adequate for prompt placing. If, however, through organization or any other influence a quicker movement of cars and their return to the railroad could be brought about, it would be a factor which would eventually have to enter into the basis of ratemaking.

Refrigerator car equipment previous to 1913 was not increasing in proportion to the growth of perishable tonnage handled. For five years previous to 1913, the increase only averaged one hundred and thirty-one cars a year, while in 1913 it was increased by eight hundred and twenty-nine. Returns, however, show that even that season with a small crop, the entire refrigerator car equipment of Canadian railways was required by the fruit shippers during the movement of the apple crop alone from the province of Ontario during October and November. Therefore, we should do all that is possible to encourage the releasing of cars, as it is evident the supply of refrigerator cars is far short of the demand. This shortage of cars is one of the most serious grievances confronting the fruit shipper, and is a matter demanding careful attention.

Present regulations all favor the carrier. Perhaps they do all they can to meet the demand, but legislation less stringent than that appearing on the statutes of the state of Texas might help some. In that state the railways must supply ten cars or less in three days; over ten and not exceeding



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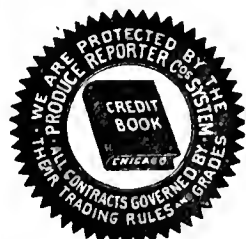
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References: The Canadian Bank
of Commerce, (Market Branch)
and Commercial Agencies.



*Extract from a paper read at the recent Dominion Fruit Conference held at Grimsby, Ont.

FOR SALE AND WANTED

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 30 cents, strictly cash in advance.

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WANTED—Clean, bright beeswax and fancy comb honey.—R. N. Smeall, 95 4th Ave., Viauville, Montreal, Que.

WANTED—One ton or more of yellow onions from inch to inch and half. No smaller. Please send sample and price for immediate delivery to The Rosery Flower Co., Medicine Hat, Alberta.

delivery of cars is also regulated by statute, but a more sane penalty in most cases is one dollar a car a day. Free time for unloading runs from twenty-four hours in Minnesota to ninety-six hours in Connecticut, and one dollar a day demurrage for each day exceeding such free time.

The same penalty is fixed upon the railroads for delays in placing cars for unloading, when they exceed from twenty-four hours in Virginia to seventy-two hours in Florida. Records supplied me the past season from thirty-six cooperative associations in the province of Ontario show a total of one thousand two hundred and sixty refrigerator cars used. Twenty-two of the thirty-six associations experienced delays in the supplying of cars of from two to thirty-six days. Eleven associations had satisfactory service, and three did not ship in carloads. Seven days was the average time required in supplying refrigerator cars to the one hundred and thirty-one individual shippers of the apple growers' association. This grievance exists in all the fruit shipping centres of the Dominion. A bill should be introduced into Parliament requiring railroad companies to promptly supply proper cars and other transportation facilities, and to extend the jurisdiction of the Railway Commission in making rules and regulations with respect thereto, because service is as important as the rate.

New South Wales Fruit Case Act, Operative July 1, 1914

The regulations, in respect to the New South Wales Fruit Cases Act, that took effect on July 1, 1914, are outlined as follow:

"Where any apples, apricots, bananas, cherries, currants, figs, gooseberries, grapes, loquats, lemons, nectarines, oranges, passion fruit, peaches, pears, persimmons, pineapples, plums, quinces, tomatoes, and any fruit now or hereafter declared by the Governor by notice in the New South Wales Government Gazette to be fruit within the meaning of the 'Fruit Cases Act, 1912,' are sold in a case in New South Wales, or exported from New South Wales to any other place within the Commonwealth, such fruit shall be contained in a

case of any of the measurements set out hereunder, and a case of any special mea-

surement shall have the capacity hereunder set out opposite to such measurement:

CASE	INSIDE MEASUREMENTS	CAPACITY
One bushel case ..	18x14 $\frac{1}{4}$ x8 $\frac{3}{8}$ ins. ..	Not less than one Imperial bushel or cubical content of two thousand two hundred and twenty-three cubic inches (2,223).
One bushel case ..	26x6x14 $\frac{1}{4}$ ins.	Not less than one Imperial bushel or cubical content of two thousand two hundred and twenty-three cubic inches (2,223).
One bushel case ..	20x10x11 $\frac{1}{8}$ ins. ...	Not less than one Imperial bushel or cubical content of two thousand two hundred and twenty-five cubic inches (2,225).
One - half bushel case.	18x8 $\frac{3}{8}$ x7 $\frac{7}{8}$ ins. ...	Not less than one-half Imperial bushel or cubical content of one thousand one hundred and eleven and one-half cubic inches (1,111 $\frac{1}{2}$).
One - half bushel case.	26x6x7 $\frac{7}{8}$ ins. Clear of all or any div.	Not less than one-half Imperial bushel or cubical content of one thousand one hundred and eleven and one-half cubic inches (1,111 $\frac{1}{2}$).
One - half bushel case.	18x11 $\frac{1}{4}$ x5 $\frac{1}{4}$ ins. ... Clear of all or any div.	Not less than one-half Imperial bushel or cubical content of one thousand one hundred and ten cubic inches (1,110).
One-quarter bushel case.	13 $\frac{3}{4}$ x10 $\frac{1}{2}$ x4 ins. ..	Not less than one-quarter Imperial bushel or cubical content of five hundred and fifty-six and seven-eighth cubic inches (555 $\frac{7}{8}$).

Central Cooperative Association

M. B. Davis, B.S.A., Central Experimental Farm, Ottawa

WHERE local cooperative associations have been formed it should always be held in mind that the establishment of a central buying and selling agency should be carried into practice as soon as possible. The relations of each subsidiary company to the central need the most careful consideration. A central management cannot succeed unless it has absolute control over the produce of the local organizations, neither can it succeed unless the relations of one company to the other are on such a cooperative and business basis that there will be no opportunity for dissatisfaction and backbiting to creep in.

In the sale of produce the prices should all be pooled. By this I mean to say, that in the case of apples for instance, John Jones of the North will receive exactly the same price for his No. 1 McIntosh as John Smith of the South, each receiving the average sales price of the central organization. This eliminates all opportunity for any one company getting on the right side of the management and obtaining all the "plums." For instance, an order comes in from South Africa for 1,000 barrels of apples at \$9.50 per bbl. As there are many companies all anxious to dispose of their fruit at a high price the question arises who is to get this fat order. The result would be that jealousy and dissatisfaction would creep in, but with a pool of prices it does not matter who gets the order, for all, in the end, will receive the same price for their fruit.

There must be some way of penalizing the poor grower, but this is done in packing. By selecting a standard which is up to that of the best growers and by keeping up a standard pack in all the companies, the man who grows poor fruit will lose in the pack out. With a certain high standard properly put into practice, the No. 1's of one company should be just as good as the No. 1's of another company, and hence worth the same price.

In the handling of the total production of many companies, the Central can, if it is able to tell just how much produce it has to dispose of, make the arrangements

*Extract from a paper read before the Quebec Pomological and Fruit Growers' Association.

for its transportation in proper time. This avoids congestion. It can watch the markets and handle them in such a manner that no market will be left empty while others are filled to overflowing. We hear much about over-production, but I think there is little in it, for even here in this country we often see apples at a high price in one market while in others they are selling at less than cost. It is largely a matter of proper distribution and the proper handling of the markets and this can be done only by a cooperative movement. It is this handling of the markets and the elimination of the unnecessary distribution charges that makes cooperation a thing to be desired.

Probable Price of Apples

Writing some time ago to The Canadian Horticulturist in reply to a letter that had been sent him, A. E. Adams, Secretary of the United Fruit Companies of Nova Scotia, Limited, had the following to say in regard to the market outlook for apples:

"Presuming that the British navy is able to keep open the trade routes of the Atlantic, Nova Scotia may look for a fair return for her apple crop, although prices are not likely to be large. Staple articles of food such as flour, meat, etc., will possibly be high in England and, provided that the price of fruit is reasonable the people will probably use more of that beneficial diet. Under these circumstances a paying price may be obtained for apples, and in that respect the Annapolis Valley will benefit by her proximity to the English market. Nova Scotian apples can be placed on the English market at a lower cost than the fruit of any other North American district so that even a low price may be profitable, and bearing in mind that the crop this year is of such quality that there will be very little waste in packing I think the grower will net a very fair return tree run.

The home boiled lime-sulphur wash, the commercial solution or the vitriol solution, will entirely control the curl leaf, if it is thoroughly applied and done in time, say before April tenth in ordinary seasons.—J. L. Hilborn, Leamington, Ont.

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No. 12

Cherry Fruit Flies*

Prof. L. Caesar, Provincial Entomologist, O.A.C., Guelph

CHERRY Fruit Flies, at least in the Niagara district, which is our chief cherry district, are by far the worst cherry insects we have. They do much more injury than the Plum Curculio and Cherry Aphis together. The injury is caused by the flies with their sharp sting-like ovipositors laying their eggs just under the skin. The maggots that hatch from these work their way to the pit, where they destroy the pulp, causing the interior to become unsightly and the cherry to be unfit to eat. In many cases there is little or no sign of the presence of the maggot until the cherry is opened. Often, however, the skin above the place where the maggot is working turns brown and sinks in and frequently there is a little round hole or two in it made by the maggots to ensure an abundant supply of fresh air. There is usually only one maggot in a cherry, but occasionally two, three, or even four may be found.

The maggots are ordinarily glossy white in color, though some are cream or even yellow. They are about one-quarter of an inch long when full grown, scarcely so thick as a knitting needle, tapering sharply towards one end and

blunt at the other. They have no legs and no head, but at the small end are two little black hooks that they can protrude and retract at will, and with which they tear the pulp to free the juice. The maggots devour only the juice.

Another source of injury due to these insects comes from the fact that infested cherries as they ripen are commonly attacked by Brown Rot, and then spread the disease to neighboring cherries. Moreover, the sale of wormy cherries injures the market for good cherries.

SUSCEPTIBLE VARIETIES

The cherries worst attacked are Montmorency and all sour cherries that ripen as late or later than these, also all late sweet varieties. Early varieties, like Early Richmond, are almost immune, probably because they are nearly ripe before the flies are ready to lay eggs, and because the flies prefer to lay eggs in green cherries or those just beginning to color.

Not all the orchards in the Niagara districts are attacked, but many are, and a considerable percentage of these are among the very best orchards in the country. The amount of injury varies from year to year greatly. Some infested orchards will have only about five per cent. of the fruit wormy; others equally as well cared for will have ninety-five per

cent. It is not an uncommon occurrence to find beautiful Montmorency cherry orchards so badly infested that the fruit is not picked. Some growers, especially in towns, have become so discouraged that they have cut down part of their orchards. It was clear, therefore, to me that if I wanted to help cherry growers I could not do so in any better way than by trying to find a remedy for this pest.

WHEN DISCOVERED

The first discovery of Cherry Fruit Flies in Ontario as the cause of wormy cherries was made by me near St. Catharines in 1910. Only one species, which because of the white cross bands on its abdomen I shall call the White-banded Cherry Fruit Fly, was discovered on that occasion. In 1912 I discovered in the same locality, but in a different orchard, another species resembling closely the former, but easily distinguished by having the abdomen entirely black, without any of the above-mentioned white cross bands. This species I, therefore, purpose to call the Black-bodied Cherry Fruit Fly. Both species of flies have undoubtedly been in the province for many years, but no one ever knew what they were hitherto.

As both flies can be easily seen on the leaves or fruit of the cherry in any in-

*An address delivered at the recent convention in Toronto of the Ontario Fruit Growers' Association.



Members of the Wentworth Fruit Growers' Association Loading a Car of Apples for the United Relief Association of Hamilton, an Organization That Looks After the Poor of the City.

This association has had a successful season. Over 13,000 barrels of apples were handled, of which 2,000 were exported and the balance sold in the west at a good average price. The members will receive from 75 cts. to \$1.50 a barrel picked on ground according to the commercial value of their apples from No. 2 Greenings to No. 1 Spys.

festated orchard in June and early July, and as they are comparatively tame, permitting a person to approach close to them, they can easily be examined on the tree or caught and looked at more closely. They are about two-thirds the size of a house fly. The black-bodied one is a little larger than the other. Females are larger than males, as a rule, and often their sharp, sting-like ovipositor may be seen, especially at the time of egg-laying. Males have the end of the abdomen more rounded than the females. The general color of both species is black. The white-banded species has the following markings: Four white bands across the abdomen of females and three across the males, a whitish or yellowish dot about the centre of the back, a yellowish line along each side from the head to the base of the wings, beautiful golden-green eyes, yellow head and yellowish legs. The black-bodied species has almost the same markings except that, as said previously, there are no white cross bands on the abdomen. The wings of both species are conspicuous and characterized by dark markings, which are differently arranged in the one species compared with the other.

DISTRIBUTION OF THE FLIES

We have not had time to examine every district, but have found that both species of fly occurred in almost every locality in the Niagara district and at Burlington. We know that one or possibly both species also occur at Oakville and Cobourg. It is very likely that further observations will show they are present to some extent in other localities also. There are, however, many orchards quite free from them. The white-banded species is the more common one on the whole, though not in every orchard.

DIFFERENCE BETWEEN THE LARVÆ

The larvae or maggots of the Cherry Fruit Flies are, as previously stated, legless, headless, tapering towards one end, blunt at the other, nearly straight, and not more than a quarter of an inch in length. The larvae of the Plum Curculio are, when full grown, much larger, being about two-fifths of an inch in length, stout, somewhat curved, a dirty white or yellowish color, and have a distinct brown head. Moreover, the crescent-shaped scar shows where the egg has been laid by the adult, and infested cherries regularly show a sunken darkened area on the side on which the larva is working, so that it is easy to suspect the presence of the grub within.

Both species pass the winter as pupae in the ground, the pupae being enclosed in little brown straw-colored, oval cases, looking like grains of wheat. The adults emerge from these in June and early July; those of the black-bodied species

begin to appear the first week in June, the other species about the end of the second week, so that this one is a week or more later. The majority of the adults of the first species are out by June 14th, and of the white-banded species by about June 22nd. The earliest flies of the black-banded species, therefore, begin to appear nearly a week before Early Richmonds have begun to color, and of the other species just about the time they have got the first tint of red.

The flies feed for about ten to fourteen days before they begin to lay eggs. It is very important to know this and also how they feed. The mouth parts are very like those of the house fly and may be said to consist of a long sucking tube with broad lips at the tip. The flies can be seen moving about from place to place chiefly on the leaves with their mouth parts extended and the lips feeling for any little particles of food. If a fly finds any solid, for instance a little piece of granulated sugar placed on the leaf, it holds this with the lips until it is dissolved by saliva and then sucks it in. When the cherries get ripe and are injured in any way they feed on the juice of them.

When the fly is old enough to lay eggs she selects for the purpose unripe cherries or those just beginning to color, and running restlessly around over the fruit

for a while, then at last curves her abdomen and forces the sharp, sting-like ovipositor into the fruit. In about twenty seconds the egg is laid. The exact number of eggs that a single fly can lay is very difficult to determine, but is probably two hundred or more.

The eggs hatch in about five days, and the tiny larvae or maggots at once work their way direct to the pit, where they live upon the juice, rasping the pulp with their hooks to free the juice. In two weeks or a little less on an average, the maggots are full grown. When a maggot has reached its full size it works its way out of the fruit, soon drops to the ground, and at once begins to work its way into the ground. If the surface is soft, it quickly enters; if not, it has to search for cracks to get down. Often ants capture and destroy them before they can do so. Sometimes, too, they are killed by the hot sunshine.

Soon after the ground has been entered the maggots change into pupae. The depth of the pupae is usually about one or one and a half inches below the surface. The insects remain in the pupal stage until the next June, when they change, as already stated, into flies. There is only one brood a year. It is very probable that a few of the insects pass two winters in the pupal stage before emerging as flies.

(To be continued)

Yields of Apple Trees at Different Ages

W. T. Macoun, Dominion Horticulturist, Ottawa, Ont.

EACH year there is a large number of new fruit growers in the province of Ontario, men who believe that they can make a success of the industry and who are determined to try. These men, before making their decision, estimate present and future expenses; they also endeavour to estimate probable crops and profits, but when they come to look for figures showing the yields of different varieties of apples they are disappointed. It is a remarkable fact that there has been very little reliable information published in America on the actual crops obtained from trees of different ages of the varieties of apples which are usually planted for commercial purposes. There is the general statement that Wealthy and Wagener are early bearers, that Northern Spy does not bear anything to speak of until it is twelve years of age, and that King is a very shy bearer, and that McIntosh is a rather light cropper in some places, and so on, but few actual figures are available. In fact, until a table of such yields was published in the Annual Report of the Experimental Farms for 1902 we do not think that any records of

yields had been published when trees came into bearing and afterwards. Other records have been published in the reports for 1903, 1905, 1905-6, 1909, and 1911.

Since the year 1898, or for sixteen consecutive years, records have been kept of over three thousand apple trees in the orchards at the Central Experimental Farm. Unfortunately, among these trees the winter varieties of most commercial value in western Ontario are not to be found, such varieties, for instance, as King, Greening, Baldwin and Spy, as they have not proved hardy at Ottawa, but other known sorts, such as Yellow Transparent, Duchess, Wealthy, Fameuse, and McIntosh, have been recorded with many others. The number of trees of each variety grown at Ottawa, however, is very limited, as so many sorts are under test. In the table which has been prepared only the heaviest yields are given, as it is believed that where only a few trees of each variety are grown the highest yielding tree would be fairly near the average of an orchard of several acres. These figures are not given for the main purpose of basing future profits in orcharding, but rather to give some idea of about the

*Extract from an address delivered at the last annual convention of the Ontario Fruit Growers' Association.



A Promising Young Orchard in the Trenton, Ont. District

This orchard, owned by W. A. Fraser, Trenton, Ont., contains 3,200 trees, the oldest of which were planted four years ago. This section promises to develop into a great fruit district.

crop one might expect from trees of different ages. For estimating probable profits the yields from whole orchards should be taken for a series of years, but while, no doubt, many such figures will be available in a few years, few have been published yet, except those in connection with demonstration orchards where mature trees are under test.

McINTOSH YIELDS

The McIntosh apple comes into bearing the sixth year after planting at Ottawa. In that year a tree has borne about two eleven-quart baskets of fruit, and by the eighth year nearly a barrel of fruit is borne on a tree. By the tenth year a barrel and a half, by the twelfth year three barrels; the fifteenth year, four and a half barrels; the nineteenth year, seven and one-half barrels; the twenty-first year, seven barrels; the twenty-third year, six barrels; and the twenty-fourth year and the year following, four and three-quarter barrels, or an average during the past two years of nearly five and a half barrels a year. Taking the average per year for nineteen years during which it has been in bearing, we find the average yield per year from one tree has been about two and three-quarter barrels. It would look as if one might safely count on two barrels a tree.

The Duchess apple is one of the most reliable and productive varieties. It begins bearing the third year after planting, and by the sixth year the trees will bear nearly a barrel apiece. By the eighth year two barrels, and by the eleventh year more than four barrels, and the maximum crop so far has been reached in the twenty-fourth year, when a yield of over eight barrels was obtained from one tree. One tree bore the following crops in thirteen consecutive years, beginning with the eleventh year: Two and one-half barrels, two, three and

three-quarters, three, four and one-half, three, four, two, four and one-half, four, six, two, and five and one-half barrels. Other trees bear a heavy crop every other year. The average yield per tree from the third year to the twenty-sixth is about two barrels per tree, and from the tenth year to the twenty-sixth, three barrels.

The Wealthy is one of the earliest and most productive bearers, but it does not become a large tree, and the maximum crops have not been as large as some other varieties. It begins bearing the second or third year after planting. One tree gave us as much as nine gallons of fruit the third year, but as a rule there are only a few apples the second and third years, and most trees do not give more than from three to five gallons the fourth year. The fifth year there is about half a barrel to a tree, although we have had over a barrel on one tree. By the seventh year the trees will be bearing a

barrel or over, and by the eighth year there has been as high as two barrels on a tree. By the eleventh year, some trees will bear two and a half barrels, and by the thirteenth and fourteenth year from three to four barrels. The highest yield obtained from a Wealthy in one year was five and three-quarter barrels in the twenty-fourth year. The average yield per year from the third to the twenty-sixth year is about a barrel and a half. This is a low average compared with some other varieties, but the Wealthy is a small tree, and as a rule bears heavily one year and has a light crop the next, which brings down the average. But from the twentieth to the twenty-sixth year the average is two and three quarter barrels a tree.

Other varieties could be discussed in the same way. One of the highest yields obtained from any one tree in any one year was from a McMahan which, in the twenty-sixth, which is the greatest age of trees in our orchards, yielded nine barrels.

In Bulletin No. 376 of the New York Agricultural Experiment Station the yields are given of an acre of Baldwin orchard of trees twenty-seven years old at the beginning of the experiment, and thirty-seven years at the end. For ten years the average yield per tree was 4.29 barrels, consisting of 2.91 barrels stock and 1.38 culls and drops. These are the only figures outside of our own for a long period of years that I have been able to find.

The figures which I have given in this short paper are merely suggestive. What are needed are figures for a considerable number of years from large orchards of a few varieties. It is to be hoped that the provincial demonstration orchards throughout Ontario will later on publish this information.

Peach Canker

W. A. McCubbin, St. Catharines, Ont.

ALL peach growers are more or less familiar with the exudation of masses of gum from the peach tree, a phenomenon which is as natural to the peach as the flow of blood from a wound in the human body, and which in like manner occurs when the tree is cut or injured in any way. I mention this in order to bring out the distinction between this general flow of gum from injuries and a disease which should properly be termed a canker. It is true that cankers are usually accompanied by a copious gum flow, but gum is also exuded from cuts, bruises, cracks, and borer holes, none of which are, rightly speaking, cankers. I shall, therefore, use the term canker in its more correct

*An address delivered at the recent annual convention of the Ontario Fruit Growers' Association.

sense to apply to those unsightly open sores on the trunk and limbs of peach trees, which are due primarily to the death of the bark and the growing tissue beneath it, and which are extended from year to year by the dying of fresh zones of tissue at the edges.

Although this disease cannot be considered as of so serious a nature as yellows and little peach, it is sufficiently important to warrant attention. The damage done by cankers each year in the peach districts of Ontario is far greater than is generally known. Not only is there a great destruction of individual limbs by them, but whole trees are often destroyed by cankers developing on the trunk or around the crotch, and it is common to see trees of which a half or a third has been lost by the formation of



Young Orchard Land, Well Located, in a British Columbia Valley

—Photo by R. Leckie-Ewing, Okanagan Landing, B.C.

a canker on one of the main limbs near the trunk. While the disease is present everywhere in the peach regions of Ontario it seems to be much more severe in some orchards than in others, and it is usually found at its worst on poorly-drained or wet land. Peaches on sandy hillsides, where both air and soil drainage are good, are relatively free from the disease.

Before entering into the question of cause, I should like to dismiss with a few words a popular misunderstanding regarding cankers. There is a tendency among less observant peach growers to attribute them to the work of borer larvae, which one often finds buried in the gum and dead bark, and which eat out the soft fresh tissue at the edges. But though these "grubs" are very frequently associated with cankers and play a part in enlarging them, they have nothing to do with causing the canker in the first place. They are not found in all cankers by any means, and are usually absent entirely from the early stages of every canker, so that despite a widespread belief to the contrary we must endeavor to find the cause elsewhere.

Judging from the manner in which many other well-known cankers arise, one would be inclined at the beginning to suppose that peach cankers are the work of fungi. Cankers of a similar nature, but without gum, of course, are to be met with in apple, oak, poplar, sumach, and numerous other wild and cultivated trees, and so many of these, like the Black Rot Canker of the apple, have been shown to be the work of some particular fungus. There is a strong probability that peach cankers are likewise caused by fungi as well. The experimental work that has already been done supports this view. Jehle, of New York, succeeded in producing cankers by inoculating peach limbs with the

Brown Rot fungus. Prof. L. Caesar and Mr. H. T. Gussow, the Dominion botanist, did similar experiments with Brown Rot, but found that though gum was copiously produced the wounds healed afterward without an extension of the canker. In the New York Report for 1900 there is a record of the inoculation of peach limbs with another fungus found universally on the dead and dying limbs

of peaches, and gum exudations resulted in each case. In addition to these, the writer has made numerous observations which tend to show that the cankers are caused by fungi. In a few instances cankers may arise from wounds, borer holes, frost cracks, and gum blisters. The vast majority start around the bases of dead twigs. Sometimes these twigs are seen to have been killed by Brown Rot, and many instances occur where a mummified peach remains on the tree and at the base of its dead spur or stalk a canker has begun.

In numberless other cases there was no evidence of the Brown Rot, but the dead twig sticking out of the canker was covered with the minute pistules of the common *Cytospora* previously mentioned. Even in the exceptions mentioned, where borer holes, cuts, etc., give rise to cankers, there is strong evidence that this last mentioned fungus has invaded the tissues about three places, and has caused the cankers. The results of these observations were not conclusive, but served to strengthen the suspicion that either the Brown Rot or the *Cytospora* or both were closely associated with canker formation.

(To be continued)

The Apple, the National Dish of Canada

THE suggestion advanced in the November issue of *The Canadian Horticulturist* that a concerted effort should be put forth by all interested in the advancement of horticulture in Canada to have "The Apple" recognized as the "National Dish" of Canada, has met with a most gratifying response. In order that the ball might be set rolling *The Canadian Horticulturist* wrote some weeks ago to a number of prominent people and asked them what they thought of the suggestion, and if they would be willing to help the movement. All have expressed their approval and have taken steps to promote the suggestion.

The Dominion Fruit Commissioner, Mr. D. Johnson, of Ottawa, replied: "I will be glad to do everything possible to bring about the desired results, and be pleased if you could urge a number of fruit growers' associations, not only the provincial associations, but strong local associations as well, to take this matter up, and send copies of the resolutions both to the Minister of Agriculture and myself. Hon. Mr. Burrell is very alive to such things, and if we have the resolutions we will then know if it is the wish of the country that something should be done along this line."

President Robt. Thompson, of the Ontario Fruit Growers' Association, wrote that he favored the suggestion, and would bring the matter before the

members of the Ontario Fruit Growers' Association at their annual convention in November. Mr. Thompson did this, mentioning it in his annual address. The suggestion was most favorably received, and a strong resolution endorsing the proposal was passed, a report of which is published elsewhere in this issue.

Mr. J. H. Bennett, the President of the Ontario Horticultural Association, also favored the proposal in his address to the members of that association at their convention in November, and they also passed a resolution favoring the idea.

President T. G. Bunting, of the Pomological Society of the Province of Quebec, writes *The Canadian Horticulturist* that he is much in favor of having the apple recognized as Canada's national dish, and that he will mention it at the annual meeting of the Quebec Pomological Society to be held this month.

CABINET APPROVAL

Hon. Geo. E. Foster, Dominion Minister of Trade and Commerce, who has done so much to advertise and popularize the use of the apple this year in Canada, is also favorable to the movement. In a letter to *The Canadian Horticulturist*, Hon. Mr. Foster said: "In so far as it is your desire to establish the apple permanently as the favorite fruit of Canada, and induce our people to consider the advisability, both from the sanitary and patriotic point of view, of rais-

ing it to the dignity of the National Dish, I am with you; and a beautiful and variegated dish this would be, adorned with the distinctive fruits of six of the nine provinces of Canada. With our present facilities of storage, and width of seasons, this dish could be served up almost every month of the year, and for the little time that the actuality was not available one could subsist on memory and imagination. Certainly by all means let us take the apple for the national dish of Canada."

Now that the movement has received

this hearty support in influential quarters, The Canadian Horticulturist hopes that all its readers will assist in promoting the good work. Provincial Fruit Growers' Associations and local associations which have not already done so are invited to pass resolutions and forward copies of them, with the names of the movers and seconders, to The Canadian Horticulturist in order that these may be made public and in due time submitted to the Government so that official and national approval of the proposal may be obtained.

Floral Effects in An Amateur's Garden

WHERE there's a will there is a way. This is as true of operations in the garden as of most everything else. It has been proved to be the case in the garden of Mr. A. Carson of Barrie, Ont., who in spite of unusual difficulties has evolved a garden of which any amateur flower grower might well be proud.

Mr. Carson is a commercial traveller. His business takes him from home about five days in the week. Saturday is the only full day he can devote to his garden, except during vacation, when his entire time is spent among his flowers. In spite of this handicap Mr. Carson attends to all the work in his garden himself except for the assistance of a hired man in the fall and spring to plow and dig.

Mr. Carson believes in absolute system. He maintains that when once a garden is put in good shape the work is then easy and it is a pleasure to keep it so. "What is finer," asks Mr. Carson, "than making flowers a hobby? Where is there anything grander, anything more stimulating to tired nerves?" An enthusiastic gardener always enjoys the best of health. Not often will you find a man or woman who spend their spare time in the garden prone to the common ills of life.

In the early spring all seeds in Mr. Carson's garden are started in cold frames. Storm windows from the house are used for glass. This is surely an indication that he is decidedly an amateur in his methods. Poppy is sown broadcast, and when it is nicely up it is thinned out. All the other annuals are transplanted. There is a good deal of work in this, but when done the garden presents a very neat appearance and furnishes much satisfaction to the man who does the work. It is an advantage, also, as to arrangement and harmony of color.

In contests conducted by the Barrie Horticultural Society, Mr. Carson has been awarded first prize for his boulevard and lawn, for neatness and general appearance. The edges of the curb and walks are constantly trimmed. The grass

is not allowed to grow over. To have an effective lawn it is absolutely necessary to keep the edges well trimmed. No lawn, no matter how well cut, will look right with the edges rough with long spikes of grass.

On the south side of the house and ninety feet back from the sidewalk, there is a lilac hedge about seventy feet long and trimmed square. This hedge divides the front lawn from the inside. Along the side facing the street there are eighteen clumps of perennial phlox in different shades—white, mauve, crimson, and other effects. Between the phlox there is planted scarlet sage (*salvia*), bordered with *elysum*. When in bloom the effect is most striking and beautiful. On the north side of the house a lattice fence divides the lawn. In front this is banked with red geraniums and the fence running out to the street is covered with Virginia Creeper banked with a seventy-foot hedge of perennial phlox and bordered with *oxalis*. This, also, is very pretty. On this part of the lawn a weeping elm stands in the centre.

The garden consists of flowers that are easy to grow and that have plenty

of bloom. Asters are planted in solid colors and in rows. *Salpiglossis* are massed in one solid bed, as is also *scabiosa*. These are placed at each end of the aster bed and at each corner; at the back of the bed, a clump of white and pink cosmos bloom. For a background white and blue annual larkspur are used, and at the back of that a row of perennial larkspur (*Delphinium*) in all shades of blue. Behind the delphinium are sweet peas. The bloom in this arrangement is wonderful.

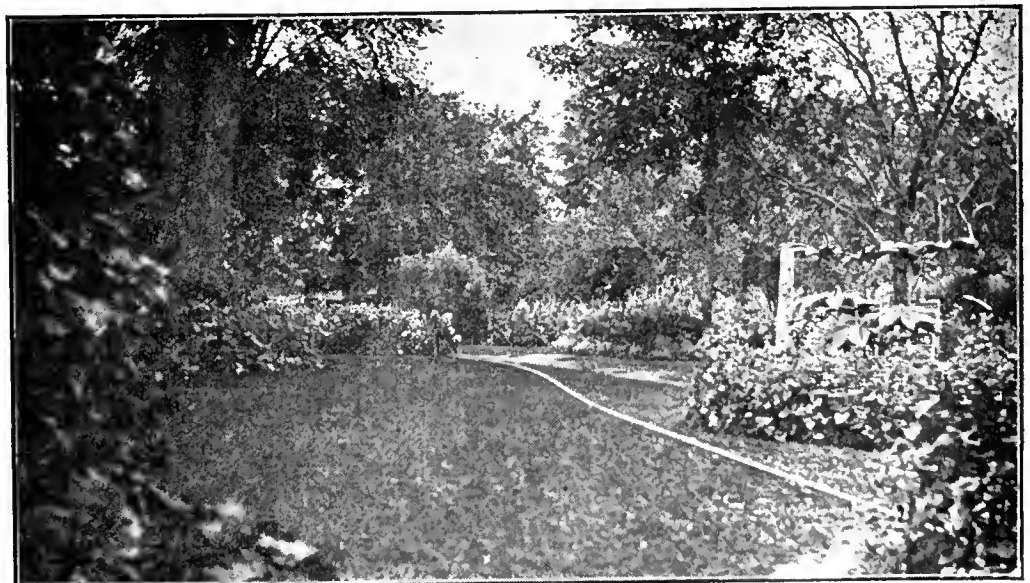
Along the driveway, the entrance from the back street, there is a hedge of purple and white larkspur and white and pink cosmos in all four rows. This hedge is seventy feet long, eight feet wide, and a mass of bloom.

Petunias figure largely in the garden, there being a solid bed seventy feet long and four feet wide, with a few marigolds among them. There is also a bed of Iceland poppy, six by fourteen feet, and a bed of Phlox Drummondii, of the same dimensions. The Iceland poppy bed has a border of *caliopsis*. Among the phlox are a few love-in-a-mist, and as they are taller than the phlox the effect is very pretty.

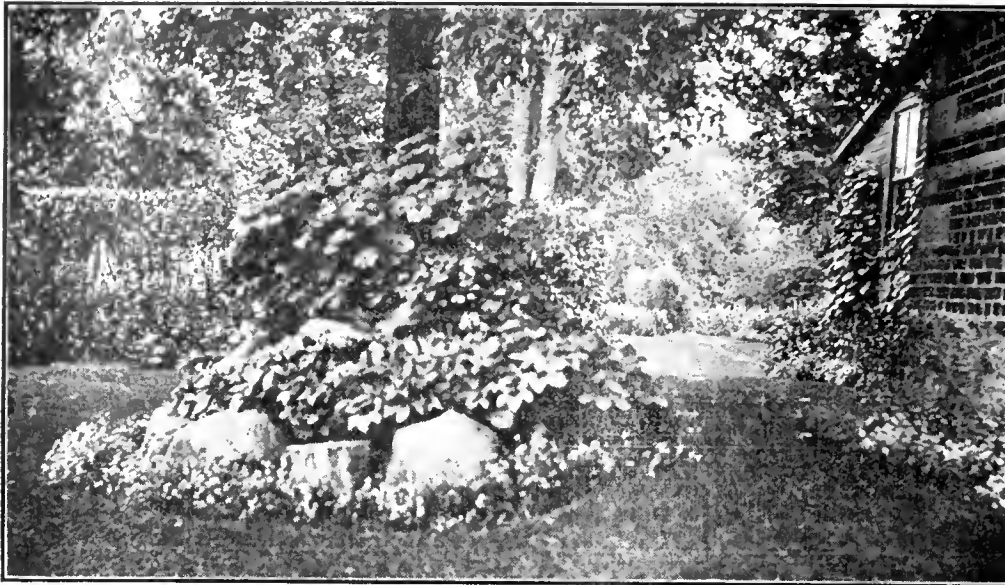
Some six or seven hundred gladioli are planted in rows eighteen inches apart. The gladioli last year were left in the ground over winter. The experiment proved disastrous, as they grew so thickly this summer the result was very little bloom.

On the lawn and in the garden there are three rockeries. These are filled with flowers of continuous bloom, edged at the base with *elysum* and *oxalis*.

The canna bed has castor bean, tuberous begonia, and *elysum* around it. The large elm tree on the lawn has rock built around it one and one-half feet high and three feet from the trunk. This is filled



A Beauty Spot in the Garden of Mr. A. Carson, Barrie, Ont.



A Rockery and a Glimpse of the Lawn of Mr. A. Carson, Barrie, Ont.

with earth, and all around the tree nasturtiums are planted very thickly. The effect is decidedly pleasing. Surrounding the lawn are quite a lot of very handsome maple trees, one a bronze leaf. In the spring this tree is very fine. The leaves are almost a blood red. One is

a cut leaf maple, of a drooping nature. It is a beauty. It stands out on the lawn in a most attractive manner. The nature of this tree is to grow rank, but by cutting it back from the top every four or five years, it assumes a beautiful drooping shape.

The Best Roses for Amateur Gardeners*

James M. Bryson, Moore Park, Toronto, Ont.

WHEN it is considered that a great many varieties of the rose are almost the same as regards color or shades of color, it becomes a hard task from an amateur's point of view, to determine just what are the best varieties to grow. Of course, where space and expense are unlimited, it is an easy matter to plant all or nearly all of the varieties in cultivation. Then, of course, you have all the varieties that are easy to grow, as well as the ones that are indifferent. Be that as it may, the rosarian with a small collection or one who contemplates planting a few bushes for a start finds himself in a quandary when he attempts to decide as to the varieties that will give the best results. Under ordinary circumstances he must aim at getting varieties that are, if possible, mildew-proof, of robust habit and vigorous growth. Unfortunately, most varieties of the rose, at least seventy-five per cent. of them, are more or less subject to this pest. Another point to be considered is to be careful to select varieties whose color is pleasing to the eye and at the same time possess the aforesaid qualities, vigorous growth and hardiness. Unfortunately, a very large percentage of our finest roses are what are

termed thin roses; that is to say, they lack substance. A large number of these are easy to grow and are always in flower from the middle of June until the end of October.

There may be many whose sole object is to grow roses for exhibition purposes, but most people grow them for their beauty alone. The rose will grow and thrive in almost any soil to a certain state of perfection. Up to a few years ago, the only type of rose that was grown on this continent was a few varieties of the hybrid perpetuals, among which were Magna Charta Baron, De Bonstettin, and General Jack. Rose lovers were afraid to plant either hybrid teas or teas and noisettes, because it was said they were not hardy enough to stand our Canadian winters. My experience with hybrid teas and teas, and I except no variety, either, climbing or dwarf, has been that these two sections of the rose are just as hardy as any of the hybrid perpetuals, providing the proper means of protection is applied to carry them through the winter. Last winter in Canada was the most severe test that outdoor roses have had in the last twenty years in this province, but such tender roses as Marcheal Neal, Devoniensis, Niphetos, Lady Hillingdon, Sunset, Sunrise, and many others of the teas and noisettes I could mention, came through the test in as good shape as any

of the perpetuals that are grown by me in Avoca Vale. I merely mention this fact to dispel the belief that there are only certain varieties and types of roses that will come through the winter in good shape.

In the hybrid perpetual section, some of the best varieties with their colors and modes of growth are the following: The new perpetual Gloire de Chedane, Guineasseau is perhaps the largest. It is a most profuse bloomer and delightfully fragrant and not liable to attacks of mildew except late in the season. This variety blooms continuously from the middle of June up till the end of July and again in the fall.

Hugh Dickson is another brilliant rose, lighter in color than the former variety, but just as floriferous and sweetly perfumed. It does best as a garden rose in Canada when budded on the seedling briar. Alfred Colomb, another grand old rose, bright red in color and globular in shape.

Alfred K. Williams, red-shaded carmine, is very sweetly perfumed. Captain Hayward, light crimson, one of the most popular roses for either exhibition or garden decoration. Charles Lefebvre, velvety crimson, overlaid with blackish crimson, one of the best roses of its color. Earl of Dufferin, dark maroon crimson, is a magnificent variety, sweetly fragrant, blooming well on into August. As the blooms are very heavy, they are better tied to stakes to prevent their lying on the ground. Gustave Piganeau, one of the largest roses; color, a beautiful carmine. Ellen Drew, pale rose color, an almost perpetual bloomer and mildew-proof, also almost thornless. Mrs. R. G. Sharman Crawford, rose pink in color, cup-shaped, and a rose that is never out of flower, but mildews badly. Mrs. John Laing, shell pink, an old variety, but still one of the best, almost perpetual flowering. Margaret Dickson, color bluish-white, a good rose and almost the only rose of its color in this section.

Marie Beauman, color carmine red; very sweetly perfumed, a magnificent exhibition or garden rose, according to the way in which it is grown. Paul Negron, rose pink, until lately considered to be the largest rose grown. This is a rose that is particularly good in autumn, though none too free at that time. Prince Camille De Rhon: This I consider the darkest rose in this section; color almost black, sweetly perfumed, and a variety that likes lots of feeding. Frau Karl Druschki, pure snow white, and already so well known that it requires no comment from me. Coronation, new, the largest rose in cultivation in Canada; color, a brilliant shrimp pink, with flowers measuring five inches across, a very vigorous grower, without

*Extract from an address delivered at the recent annual convention in Toronto of the Ontario Horticultural Association.

feeding, and absolutely mildew-proof. Ulrich Brunner, red, a good grower, and proof against mildew and black shot. The varieties of the hybrid perpetual section mentioned I consider to be the best

for any purpose. The majority of them are a distinct advance on some of the older varieties, although the colors are in some cases almost the same. All are perfectly hardy.

The Charm of the Chrysanthemum

B. C. Tillett, Hamilton, Ont.

MANY years ago the chrysanthemum, or 'mums, as they are sometimes called for brevity's sake, was but an inconspicuous flower of the wilderness. Its native home, as most people are doubtless aware, is in China and Japan. In those countries its history can be traced back for two hundred years. Its arrival on the American continent is of comparatively recent date. It is recorded that it was first exhibited in New York some twenty-five years ago.

The chrysanthemum ranks in popularity next to the rose and the dahlia, but it is in a class by itself. It comes at a season of the year when outdoor flowers are becoming scarce, and that gives it an added charm. Then again, it comes in endless variety of beauty and color, each combatting with the other for supremacy.

Another reason, especially among amateurs, that tends to make the chrysanthemum a favorite, is that the plant arrives at maturity very quickly. We can sow our seeds and cut our blooms the same year, and by propagation from cuttings, an operation easy to perform, we can have all the plants we please the following year. There is, too, always the possibility with the chrysanthemum seed that something new may be discovered. In the United States, seed-raising took hold long ago of many professional growers, seed being imported from the Far East, and then growers started to raise their own seed and to make crosses. In Europe, novelties were soon hit upon, and the visitor to the great exhibitions there was always alighting upon some new variety in size or color, though nothing has been actually accomplished in the way of new forms. The blooms, compared with those of fifty years ago, show a greater delicacy or more graceful finish, especially with the incurved variety. This is the outcome of elaborate care on the part of expert exhibitors. The size of the blooms has also been greatly increased.

It is perhaps in the matter of color that the chrysanthemum holds its greatest attractions. It may be we are more critical of color than were our forefathers, and certainly this generous flower teaches us the value and dignity of mass treatment as does no other flower I know of. At the same time, a single bloom is large enough in itself to be an attraction.

Many of us will remember the sensation caused at the Chrysanthemum European Centenary held in London in 1889, by the enormous blooms exhibited that year, which were then considered the acme in the matter of size; and yet such blooms have since been surpassed over and over again. Time was when we had great blooms on great tall stalks six and eight feet high. Now stalks have become shorter, but the blooms continue to increase in size.

Of course, the exhibition bloom is an artificial production brought about by a laborious system of cultivation and training of both plant and bloom. Left to itself to grow in its natural state, the plant will produce a profusion of blooms, but they will be small, on account of the many branches. The fewer branches, the larger the blooms.

On some future occasion I hope to discuss the methods of cultivation, and to give some practical hints on how to obtain the best blooms; but, of course, spring is the time when cultivation commences, and that is some way off. When the blooms are reaching maturity, we must watch the varying degrees of hu-

midity and sunshine. With chrysanthemum blooms the greatest danger is their getting mouldy through dampness. This has to be carefully safeguarded against. To prevent this, however, it is only necessary to maintain an even temperature in the greenhouse day and night.

It adds much to the enjoyment of a visit to the shows if one has some knowledge of the different kinds of chrysanthemums; that is, their classification. The principal divisions are into the large flowering kinds and the pompon, the blooms of the latter measuring hardly an inch across. Dealing with the larger flowering kinds, they may be divided into Chinese and Japanese; not that there is any national distinction, but because those blooms which are of irregular form, that is, having the petals twisted in and out of each other in any direction, are called Japanese, whilst those having closely-knitted petals, incurved, with smooth, regular surface and form, are called Chinese. The Chinese type is more commonly seen on this continent, and is known as the incurved. These, then, are the two principal groups—"Incurved" and "Japanese." The Pompon is a small flowering and hardier kind, with flowers hardly an inch across. The "Single" may be likened to a daisy. Its petals range around a central disc. In the "Anemone," the ray florets are seen largely developed, regular and stiff, and the central or disc florets more pronounced than in the case of the "Single."



Climbing Roses and Larkspur in the Garden of Mr. J. H. Bennett, Barrie, Ont., who last month was Re-elected President of the Ontario Horticultural Association.



One of Seven Flower Beds Planted Last Spring by the Galt Horticultural Society

For three years the members of the Galt Horticultural Society have been conducting a campaign of civic beautification. It has been attended by excellent results. Many former unsightly spots have been transformed. The school children have been interested.

Lastly comes the "Reflexed" Japanese, where all the florets or petals are shorter and have a sharp downward turn at the tip.

If the two main divisions are kept well in mind, there only remains to remember the Pompon, the Single or Daisy, the Anemone, and the Reflexed.

With very little shelter, all those var-

ieties may be grown together and in profusion, and while the highest skill is required to produce blooms for exhibition purposes, there is no other flower at this season of the year which can afford us so much pleasure or give us so much variety of bloom and color as the chrysanthemum, or which can be more easily cultivated.

Hardy Conifers*

W. T. Macoun, Dominion Horticulturist. Ottawa

THERE are many varieties of the American Arbor Vitae, *Thuja occidentalis*, no less than seventy-two having been grown at Ottawa. There are a few, however, that are outstanding. The ordinary wild form makes a beautiful evergreen, and when grown in masses with the branches sweeping the ground they are very effective. It makes the most satisfactory evergreen hedge at Ottawa.

Among the best varieties are *Ellwangeriana* of compact, rather dwarf but vigorous habit and having slender leaves and branches; *Hovei* of rather dwarf habit with bright green leaves and the branches flat and parallel, giving the shrub a remarkable and attractive appearance; *Compacta*, a dwarf compact, roundish shaped variety with bright green leaves; *Pyramidalis*, a very compact upright grower. Its columnar form makes it one of the most conspicuous objects on the grounds; *Saundersii*, a somewhat pyramidal form with deep green foliage and somewhat twisted branchlets; *Douglas'-Golden*, probably the best golden-leaved form, and the so-called *Siberian Arbor-vitae*, *T. occidentalis* *Wareana*, which in the severest winters has not been injured, while almost every other variety has been. It is compact, of semi-dwarf habit, and has deep green blunt leaves, which keep their color in winter. *Thuja plicata* or

gigantea, the species which grows wild in British Columbia and which makes a very beautiful tree there, does not succeed very well in the drier atmosphere of Ontario.

THE HEMLOCKS

The hemlocks are beautiful, graceful trees, and while rather slow growing, eventually become magnificent specimens. The native species of Eastern Canada, *Tsuga canadensis*, is the most satisfactory. As an evergreen hedge it is very attractive, and on account of its slow growth can readily be kept within bounds, but should not be used where a quick effect is desired on this account.

THE SPRUCES

There are three species of spruce native to Eastern Canada, namely the white, red, and black, but the white is much the best for ornamental purposes, and the black spruce has not done well under cultivation at Ottawa. It grows naturally in swampy ground and appears stunted when grown in well drained soil. The red spruce, which is a very prominent tree in the Maritime Provinces, is a good deal like the Norway spruce in color of foliage, but is not as graceful a tree as the Norway. The white spruce is, however, a very desirable tree. One should get the bluest specimens that can be obtained as individual trees vary much in color, some being much bluer than others. This native spruce is a more graceful tree than

the Colorado blue or Rocky Mountain blue spruce, but both are necessary. Where there is only room for one the preference is given to the Colorado blue, as one cannot get quite as blue an effect from the white spruce and the Colorado blue spruce takes less room. Moreover, the white spruce suffers from the Spruce Gall Louse, which in recent years has injured the appearance of it. The variety of Colorado blue spruce known as *Kosteriana* is particularly blue. They are obtained grafted. If one has a large place and needs many trees the cheapest way to obtain blue specimens of this spruce is to buy small mixed seedlings and select those of best color, as the Colorado blue spruce varies from a most attractive shade of steely blue to green, and all gradations are found in the seedlings. Well grown specimens of the bluest shades are expensive. This spruce is one of the hardiest. It succeeds well in the prairie provinces, where the temperatures are very low sometimes. It is a rather slow grower, but eventually reaches a good height.

One of the best spruces is a western native species, *Englemann's* spruce, which grows in the Rocky Mountains. This does very well at Ottawa. It has a more graceful outline than the Colorado Blue Spruce and while the leaves are not quite so blue they are of an attractive bluish green shade. The Norway Spruce has been planted on private grounds in Canada, more, perhaps, than any other species. There are several reasons for this. It is one of the cheapest spruces to buy; it grows rapidly; and it is quite ornamental particularly for the first twenty-five or thirty years. The Norway Spruce is the fastest growing spruce of all the species which have been tested at Ottawa. Its pendulous branches make individual specimens very attractive and its large cones add also to its interest. It has been much used for wind-breaks in the province of Ontario and is very desirable for this purpose. Many hedges have been made of this tree and where they get plenty of light are quite satisfactory, but if the hedges are shaded they lose their foliage at the bottom. There are large numbers of dwarf, variegated and weeping forms of the Norway Spruce but none of them are very attractive. The Serbian Spruce, *Picea Omorica*, is a beautiful species which it was thought was going to be hardy at Ottawa, but in a very severe winter it was killed back. *Picea bicolor* or *Alcockiana* is a handsome hardy distinct species. The dark green of the upper part of the leaves and the bluish silvery green of the lower surface, make it very attractive.

The outdoor hydrangea does not require any protection during winter.—Wm. Hunt, O.A.C., Guelph, Ont.

The Sweet Pea---A Queen of the Annuals*

H. M. Lay, Walkerton, Ont.

THE sweet pea may justly be called the Queen of Annuals. Its beauty and grace of form, delicacy and variety of color, sweetly subtle perfume, its hardiness, above all the length of its flowering season, are striking qualities which accounts for the affection with which it is regarded. During the last ten years the sweet pea has become so popular in America as well as in Great Britain, and so many useful manuals on its culture have been written by practical florists that as a novice I feel it difficult to say anything that others more competent have not already touched upon. I take comfort, however, from the knowledge that from Adam down all gardeners have to do each for himself, the spade work which is perennially necessary, elementary though digging may be.

This charming flower came to us from the sun-kissed island of Sicily. In its native home it enjoyed a warm climate, tempered by the humidity of the Mediterranean breezes. It is, however, not the only islander who has borne transplanting well and who contrives to thrive in more rigorous climates than that of his own "tight little island." We read that an ecclesiastic in that country about two hundred years ago first sent seed to his friends in England and Holland. So we see that a useful function of modern horticultural societies was anticipated long ago. No very great progress, however, in its culture appears to have been attained until the last forty years or so, as in a work on gardening called the "Florists' Guide," published in 1857, the height of sweet peas is given as from three to four feet. The modern books hold out hopes of even ten or fifteen feet of glorious flower bedecked vines.

Whether we determine to have one row or a dozen in our garden, it is important that we should plant the best seed to be had. There are a number of growers who make a specialty of sweet pea seed, and if we purchase from those who have won their spurs on the exhibition stand, we can have some assurance of success.

PREPARATION OF THE GROUND

You may have very fair results from planting your seeds in the spring, in ground that has had merely ordinary good cultivation, but it is satisfactory to the enthusiast to know that no flower responds more delightedly to kind treatment. In 1911 the London "Daily Mail" offered a series of valuable prizes for the best bunch of sweet peas. The result was a magnificent exhibition of thousands of bunches of sweet peas. The first prize was £1,000, and both it and

the third prize were won by a Scottish clergyman, the Rev. D. Denholm Fraser. Mr. Fraser has written a charming and exhaustive little book on sweet peas. He tells us that the winning blooms were grown in his kitchen garden where at a depth of three feet there was no sign of the rich loam giving out. After reading this I believed in the truth of the saying, "wherever in the world you find anything good, you find a Scotsman sitting down beside it." With such a garden, we wonder less at his success, for most of us, I fancy, cannot scrape so deeply without exhausting the "pay-streak." In my own garden, after removing the top spit or spadeful, I find room for improvement.

A good plan is to mark out the proposed row at least three or four feet wide, dig out the first two spits, throwing them on separate sides of the trench. The bottom spit is then turned over and any stones that may be met with are removed. The bottom of the trench is then spread with a layer of farmyard manure, about three inches in depth. This is thoroughly dug into the soil so as to induce deep rooting. On the top of this comes a liberal sprinkling of bone meal, say two or three ounces to the yard. The trench is then gradually filled with soil and alternate layers of good, rich farmyard manure and bone meal, using the soil from the second spit first,

and keeping the good soil for the last. At least a day should be allowed for settling, longer, if possible. The surface is then raked smooth. A good sprinkling of soot is beneficial as a top dressing, both before and after sowing.

SELECTING VARIETIES

There are about a thousand varieties of sweet peas. About half of these are the newer Spencer or waved varieties—descendants of their famous ancestor, Countess Spencer, first introduced at the exhibition of the British National Sweet Pea Society in 1904. The amateur who has only a limited space may feel rather perplexed in choosing from many lists of these beautiful flowers that might be made up. Of some fifty varieties which I have attempted to grow, the greatest favorites were among the following:

White, Burpee's White; Cream, Primrose and Queen Victoria; Scarlet, Scarlet Empress; Crimson, King Edward VII; Carmine, George Herbert; Orange, Thos. Stevenson; Pink, Constance Oliver, Gladys Burt, Elfrida Pearson; Mauve, Florence Nightingale, Tennant, Irish Belle; Maroon, Othello; Variegated, Dainty, Mrs. C. W. Breadmore, Mrs. Cuthbertson.

Sweet Peas require constant attention during the season, but what other flower is there to which you can go day after day for nearly four months and always be sure of an abundance of lovely bloom? If one does not undertake their culture on too ambitious a scale, the labor will be one of love and well repaid by the health and joy it will bring with it.



A View in the Garden of Mr. H. M. Lay, Walkerton, Ont.

Mr. Lay has had unusual success as a grower of sweet peas, among other honors, capturing prizes at the Toronto Industrial Exhibition. The bed in the foreground is made up of cannaes, balsams, stocks and dianthus, with a border of blue lobelia.

*Extract from a paper read during November at the annual convention of the Ontario Horticultural Association.

Ontario Vegetable Growers Discuss Seed Production

S EED production was the all important theme at the tenth annual convention of The Ontario Vegetable Growers' Association. Production and marketing problems came up for discussion, but the delegates recurred again and again to the subject that was uppermost in the minds of all,—where is our seed to come from in the future? In the past Canadian vegetable growers have depended almost altogether on Europe for seed, Germany supplying the greater portion. The supply has now been cut off by the war. There may be enough seed in the country to meet the needs of growers for the crop of 1915. But what about 1916? everyone asked.

In the past Canadian vegetable growers have paid little attention to seed production. "Can we grow our own seed?" is the question they are now asking each other. To answer it they brought to the convention two of Canada's best known seed experts, and combined their expert evidence with the result of their own practical experiences. W. T. Macoun, Dominion Horticulturist, was unable to be present, but a paper from him was read on the all-important subject. The feature of the discussion, however, was the address of Paul A. Boving, of Macdonald College, Que., who brought to the convention the knowledge gained from seed growing on two continents. His answer to the question, "Can Canada grow its own seed?" was an emphatic, "Yes." He agreed that production on a commercial scale might not be profitable, but as to the advisability of growers producing for their own use he was most positive that they should. Seed that has developed well under our conditions, he maintained, can produce progeny that will do even better. We will be sure of the quality, trueness to type and vitality of the seed we grow ourselves. Mr. Boving questioned the economy of importing all the seed of a \$35,000,000 crop.

"Necessity now does away with reason," said Mr. Boving. We must produce the seed if we would have it. An important factor in the production will be the government's subventions of three cents to forty cents a pound that will be paid growers for the seed they produce on their own farms. This seed will be grown under government inspection and hence will be reliable.

The first point enunciated in the growing of good seed was the selection of foundation stock that is true to type and of moderate size. In gathering roots for seed purposes, Mr. Boving advised that the feeding rootlets be disturbed as little as possible and that a couple of inches of the head be left on in order that the crown be not injured. This lat-

ter is desirable though not essential. Storing he regarded as another important point, the requirements being a place as cool as possible, commensurate with safety, and not too dry. At Macdonald College they have been pitting their roots for seed production for the past four years. In planting he advised his hearers to remember that roots do not stand drying in transport and had best be planted on days that are neither windy or sunny. The square system of planting was favored, seed roots of mangels being set in thirty inches apart each way, and the smaller vegetables twenty inches.

Cross fertilization is one of the important points in seed production that must be carefully watched. Swedes, for instance, inter-cross with rape and turnips, and a seed plot should be at least one hundred and fifty yards from either of these. Similarly mangels will cross with beets and sugar mangels, carrots with the wild carrot, and long radish with globular, and different plots of all these vegetables must be located a safe distance apart, in carrots four hundred to five hundred yards.

Mr. Boving directed that mangel seed be harvested when a cut in the cluster revealed a mealy surface, turnips when the bottom pods brown and the upper ones turn yellow, carrots as the heads ripen.

Cabbage stock may be gathered in September and transplanted to the trench, where they will grow the following year, and covered for the winter. If the foundation stock has been particularly good they may be left in the row in which they have grown. In cauliflower seed production he recommended growing the plants in greenhouses and setting out in the spring.

THE MARKETING PROBLEM

Discussion of the marketing problem was first limited to retail selling direct to the consumer. The establishment of conveniently located markets in all larger cities was favored. Mr. Thomas Delworth, of Weston, gave the subject a turn, however, by declaring his belief that producing and marketing call for two distinct types of men and that for his part he would hereafter confine his attention to producing and let someone else do the selling. This conclusion was concurred in by F. C. Hart, head of the branch on cooperation of the Ontario Department of Agriculture, who maintained that the average profit on a grower's load was not sufficient to justify him spending half a day in selling it and another half in delivering it. Neither did Mr. Hart condemn the middleman. He believed that the middleman system had sprung up because it was

convenient and desirable. Also he believed that through cooperation the producer might own at least a part of the distributing organization.

What are the factors of successful cooperation? Mr. Hart defined them as a spirit of give and take among the membership, proper organization, sufficient capital with which to do business, a business manager who is competent, and a willingness on the part of members to take the usual business risks.

Special mention was made of the good work being done in farmers' clubs in cooperative buying and selling. Several instances were given, the most notable one being that of the Rainy River Potato Growers' Association, which belies its name by shipping hay, grain, poultry, eggs and live stock, in addition to potatoes. Last year this Association did a business of eighteen thousand dollars. It is financed on the joint and several note of its members for two thousand dollars. Each member is thus made financially responsible and his loyalty ensured. To extend similar cooperative organizations among the vegetable growers, Mr. Hart promised the full support of his department.

Vegetable growers in the vicinity of Toronto lose ten thousand dollars from the ravages of celery blight. In the past season, Mr. S. C. Johnston has been conducting experiments to determine the efficacy of Bordeaux mixture (4-4-40) in controlling the blight. In a few cases the results were not satisfactory but the general conclusion was that where celery was well sprayed every week from the time it appears through the ground up to harvesting the blight may be almost effectually controlled.

UNITED STATES CONDITIONS

Mr. Thos. Delworth, as delegate to the American Vegetable Growers' Convention, spoke of recent developments in the vegetable business in the United States. He made particular reference to the efforts being made to utilize a system of parcels post far superior to anything we have in Canada, and to the various systems of irrigation that he saw in operation on United States vegetable farms. He expressed a preference for the Skinner system.

The direct value of plant breeding work to the vegetable growing industry was the subject of an interesting talk by A. J. Logsdail, of Ottawa. This work at the Central Experimental Farm is necessarily limited to early maturing varieties. At present they are endeavoring to produce a variety of tomato that will mature early and at the same time mature a good percentage of its crop in the first two weeks. Early Adirondack, for instance, will mature only three to



Tomato Plants in Greenhouse of W. W. Hilborn, Leamington, Ont.

six per cent. in the first two weeks, and often the first frost at Ottawa catches the entire crop. Mr. Logsdail has set his standard at twenty per cent. of the full crop maturing in two weeks. They already have a strain of Alacrity that matures twelve per cent. in two weeks, and has gone as high as twenty-four per cent. in a month. Similar work is being done with corn, and Mr. Logsdail exhibited a matured ear, got as a result of crossing Early Malcolm and Early Adams, the new variety being fully as hardy as its parents, and of twice the size. Eventually he believed each climatic zone will work out its own strains for its own use.

EXPERIMENTAL WORK

Reports of the experimental work conducted at the O.A.C. and the Jordan Harbor farm in the interest of vegetable growers were given by F. M. Clement of Jordan, and J. E. Britton of Guelph. Both of these addresses will be given more fully in future issues. At the evening session, Prof. Graham spoke on "Poultry Raising in Connection with Vegetable Growing," two industries supposed by many to be incompatible. He believed that poultry could be reared without injury to all vegetables, except lettuce, providing the weather was not too dry and the chickens were always well fed. He told of having run one hundred chickens to the acre in Prof. Crow's vegetable garden at Guelph. This he considered as many as should ever be allowed to a single acre. Prof. A. H. McLennan, of Macdonald College, concluded the evening's programme by giving an illustrated talk on vegetable gardening, his views showing some of the best gardens in Eastern Canada and the Eastern States.

The annual report of the secretary, Mr. J. Lockie Wilson, bore testimony to the splendid manner in which the vegetable growers have responded to patriotic appeals. He mentioned one association in particular, that of Scarboro, which filled a car for the Canadians at Valcartier, and had such a surplus that they had to charter another car at a cost of sixty-three dollars to themselves, to carry it to the camp. For some reason or other this gift was never acknowledged. Numerous gifts of a similar nature had been made by other associations.

That the annual membership fee be advanced from fifty cents to one dollar, was the advice of Mr. Wilson, but it did not appeal to many of the delegates, and there was much discussion, without a definite decision being arrived at. The extension of the zone for parcel post as a means of assisting in marketing direct to the consumer was also advocated in the secretary's report. A financial statement for eleven months, November 30, 1913, to October 31, 1914, showed total receipts of \$1,192, expenditure of \$936, and a balance on hand of \$256.

On behalf of the Committee on Cooperation, Mr. Reeves of Humber Bay submitted a resolution asking that definite action in reference to cooperative dealing by the association be deferred for the present. He stated that the committee had exhaustively examined the possibilities of cooperative buying of seeds, but that war had so disorganized the market that seed buying was a problem they could hardly solve. He advised that the branches continue to buy cooperatively in the meantime, and a workable plan would be submitted for centralized buying at the annual meeting. Several delegates objected to this

resolution, notably Mr. McCalla of St. Catharines, on the ground that the association was falling down just when help is most needed. Others pointed out, however, that were a policy to be adopted now and the plan fail, due to war conditions, it would be disastrous to future cooperative effort. The resolution carried.

Hon. Mr. Duff, Minister of Agriculture, was the first speaker at the evening session. He emphasized the duties of all agriculturists in the production of food stuffs in unusual quantities during this hour of the Empire's need. He intimated that his department was considering the advisability of embodying the addresses of the annual convention of the Vegetable Growers' Association in a small pamphlet, that could be printed and got to the members before spring planting, and thus be of more use to them than the larger and fuller report now issued, which does not reach them till later. Several of the delegates took this to mean that their annual report was to be discontinued, and they were not slow in expressing their dissatisfaction with any such change.

The convention this year was thoroughly representative, even if it did not record an advance in attendance. The great problem of seed production gave to the proceedings unusual importance, and in the words of their president, Mr. C. Wesley Baker, of London, the growers endeavored to prepare themselves for "business unusual" as well as "business as usual."

Vegetable Pointers

Never handle celery when the top is wet. It induces rust.—F. F. Reeves, Humber Bay, Ont.

The best way to store potatoes and garden root crops is in a root house isolated and specially constructed.—Jas. Guthrie, Dixie, Ont.

When crops grown in the greenhouse are given the best conditions possible for their growth, loss from diseases will be reduced to a minimum. In other words, prevention is better than cure.—C. W. Waid.

The maggot which works in the roots of cabbage and cauliflower, is sometimes in or on the root when the plants are taken from cold frames, the fly, resembling a housefly closely, having deposited her eggs among the young plants. This can easily be prevented by using screens either of wire (mosquito screen) or cloth over the cold frames when unprotected by glass. No apertures, however small, should be left, and inasmuch as the glass is raised frequently the screen should be in place at all times to insure protection.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

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6. Advertising rates, \$1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1913. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,626	Total	150,293

Average each issue in 1907, 6,627
" " " 1913, 12,524

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts. Communications should be addressed

THE CANADIAN HORTICULTURIST

PETERBORO, ONT.

EDITORIAL

A NEW YEAR'S WISH

The development of character on the highest lines should be the chief aim of our lives. That we may all make worthwhile progress in this direction is the sincere wish of The Canadian Horticulturist for all our readers for 1915.

SIGNS OF PROGRESS

THE announcement on the index page of this issue of The Canadian Horticulturist that on and after the first of next year, the regular edition of The Canadian Horticulturist will be divided into two sections and published in the form of a fruit edition and of a floral edition, is of more importance than might at first appear. It marks an advance in the horticultural interests of Canada.

Thirty-seven years ago the members of The Ontario Fruit Growers' Association felt the need for a publication devoted to the interests of horticulture. In the face of great difficulties they launched The Canadian Horticulturist. From that day to this The Canadian Horticulturist has been the recognized medium in Canada of the great horticultural interests.

At first it had many difficulties with which to contend. It was small in size, the subscription price was high, and comparatively few people were interested in advanced horticultural efforts. At that time there were no horticultural societies in Ontario. In time, mainly through the efforts of the then editor of The Canadian Horticulturist, many horticultural societies were formed. These affiliated with The Ontario Fruit Growers' Association, and subscribed for The Canadian Horticulturist for all their members, paying seventy-five cents a year for it.

Ten years ago another forward step was made. The publication of The Canadian Horticulturist was taken over by a company composed of leading fruit and flower growers, and in which The Ontario Fruit Growers' Association retained a considerable interest with representation on the board of directors. The Canadian Horticulturist was enlarged in size and the subscription price was reduced. Largely through the efforts of the present editor the Ontario Horticultural Association was formed and the government was induced to pass a new Act respecting Horticultural Societies, and increasing their government grant. Since then the work of the horticultural societies of the province has shown a vast improvement. The Canadian Horticulturist has continued its close identity with them.

Now the time has come for another forward step. Hitherto it has been found necessary to divide the space for reading matter between the professional fruit and the amateur floral interests. Under these circumstances it has often been impossible to devote as much space to either as has been desirable. Under the new arrangement, which will come into effect the first of the new year, by publishing The Canadian Horticulturist in two editions, the first devoted mainly to fruit and the second to flowers, this difficulty will be largely overcome. In both editions space will still be devoted to both subjects, but not to the extent that it has been in the past. In due time we expect that these two editions will develop into separate and distinct pub-

lications devoted wholly to their special branch of horticulture. The advance in the subscription price will be fully justified by the improvement in The Canadian Horticulturist. We will appreciate it if our readers will advise us at the earliest possible date which edition they desire to have us send them. We know that the readers of The Canadian Horticulturist will appreciate the improvements we intend making, and we count on continuing to have their loyal support in the future as in the past.

THE MIDDLEMAN'S PROBLEMS

Of late years there has been a growing tendency on the part of many fruit growers, including even men having considerable commercial experience, to belabor the city retailer as being one of the main factors in the increased cost of marketing the fruit crop. Again and again we hear fruit growers describe cases where barrels of apples or baskets of small fruit have been sold to retailers at low prices and sold out again by them at an apparently unreasonable advance. The difference between the price the retailer paid for the fruit and the price he sold it for to the consumer is generally described as clear profit.

If retailers made an unreasonable profit on their turnover the law of supply and demand would quickly lead to a sufficient increase in the number of retailers to bring down the price. Their bookkeepers and clerks would quickly see the profit they were making and would launch out into business for themselves. The expense of starting up in the retail business is sufficiently low to make this easily possible.

Strong evidence that the average retailer is not able to become wealthy overnight has been furnished by the experiences of fruit growers and other producers who have attempted to establish retail outlets for their produce have almost invariably ended disastrously for the producers and generally in a very short time. The cost of conducting a business in a city has always been found to be heavier than appears on the surface.

Mr. Clark, a retailer in Toronto, established a strong case for the retailer in the address he gave during November before the members of the Ontario Fruit Growers' Association, as will be seen by the report of the address published in this issue. Fruit growers will do well to read this address with care. It may help some growers to appreciate that the retailer, instead of being the black sheep he has often been painted, is himself the victim of forces over which he has no control, among which, and by no means least, are rapacious landlords who, by monopolizing the land in our cities are able to levy heavy tribute on producers, middlemen, and consumers alike to the extent of millions of dollars a year.

READY FOR AN ADVANCE

The Fruit Marks Act has justified itself. The opposition to its enactment was bitter. To-day fruit growers freely admit that it has proved of untold benefit to the fruit industry. At first it was feared that the Act might be too strictly enforced and hardship result to many growers. To-day it is realized that the Fruit Division at Ottawa has looked after the administration of the Act in an admirable manner, and that the time has come when the Act should be more strictly enforced than in the past.

At the recent Dominion Fruit Conference the desire of the fruit growers for an even more rigid enforcement of the Act was very evident. There was a demand for more inspectors, for the elimination of

THE CANADIAN HORTICULTURIST AT HALF PRICE A GREAT OFFER

During December only, The Canadian Horticulturist may be ordered for what will practically be half price. As announced elsewhere in this issue, the subscription price of The Canadian Horticulturist will be advanced on the first of January, 1915, from 60 cents to \$1.00 a year. **During December, however, it will still be possible to subscribe for The Canadian Horticulturist for two years for only \$1.00.** This is your last opportunity, therefore, to obtain The Canadian Horticulturist for two years at the rate of only 50 cents a year.

POINTS TO BE NOTED

This offer will not be continued after December 31, 1914.

We Wish all Readers of The Canadian Horticulturist a Prosperous and Happy New Year

THE HORTICULTURAL PUBLISHING CO., Ltd. - PETERBORO, ONT.

the number three grade, for the proper filling of packages, and for other similar improvements. It was pointed out that several associations are marketing packs that are considerably higher than the requirements of the Act. The resolutions passed at the conference, as published elsewhere in this issue, show that representative fruit growers of Canada are in favor of another forward move, which will have for its object a still further improvement in the fruit pack of Canada.

PUBLISHER'S DESK

We are sure that you have noticed and appreciated the front cover of this issue of The Canadian Horticulturist. We consider it just about the nicest front cover design we have yet used. If you have not done so be sure and read every line of the poetry displayed thereon. It carries a message of hope and good cheer not only as it relates to the Christmas season and the New Year, but to all who hope that good will emerge from the terrible struggle now taking place in Europe. Be sure you catch this double inspiration. It will do us all good.

* * *

Next year's issues of The Canadian Horticulturist are going to be far the best we have ever published. With special editions for fruit growers, and special editions for flower growers, it means that both classes of our readers are going to have more articles in each dealing with the subjects in which they are particularly interested. The Canadian Horticulturist next year will be a particularly valuable premium to be offered by Horticultural Societies to all their members. See that your Society places it on its premium list.

* * *

The January issue of The Canadian Horticulturist will devote special attention to the use of fertilizers. This will be the first Fertilizer Number that we have ever published. It will be practical, simple and helpful. Watch for it.

If the press would point out the good qualities of the apple and its value as a food and its cheapness as compared with other articles of food that we use every day, they would be doing a good work.—Robert Thompson, St. Catharines, Ont.

Subscriptions for a period longer than two years at the reduced rate, will not be accepted.

When sending your subscription state which edition you desire us to send you—the fruit edition or the floral edition. (Note the announcement on the index page.)

Send your remittance by registered letter, postal note or express money order.

A CHRISTMAS SUGGESTION

A subscription for The Canadian Horticulturist for two years for only \$1.00 would be a fine Christmas remembrance for some of your friends. Do not forget them.

The Annual Rally of the Horticultural Societies of Ontario

THE big day of the year among those who are interested in the work of the horticultural societies of Ontario, is the occasion of the annual convention of the Ontario Horticultural Association. This year delegates were present as usual from all parts of the province, from Hawkesbury, in the east, to Windsor in the south-west, and from Fort William in the extreme west. The convention was held in Toronto on November 11 and 12. As usual many of the delegates were ladies. The sessions proved interesting throughout.

President J. H. Bennett, of Barrie, opened the proceedings with a brief presidential address after which the treasurer, C. A. Hesson, of St. Catharines, presented the annual report. This showed total receipts of \$247.44, composed of a balance from the year before of \$130.78, and of fees from horticultural societies for the past year of \$115.00. The expenditures amounted to \$79.48, including affiliation fee with the American Civic Association, \$5.00; stationery, \$12.45; postage and exchange, \$2.00, and \$50.00 paid to the secretary, as well as \$5.00 for his assistant, and \$5.00 for the housekeeper of the Parliament Buildings, who looked after the convention rooms. This report does not look as if the Association was doing very much with its funds to advance the cause of horticulture, but there was no discussion of it and the convention seemed satisfied. The balance on hand at the close of the year was \$167.90.

The enterprising secretary of the Association, Mr. J. Lockie Wilson, who is the superintendent of horticultural societies for the province, presented a voluminous report. It showed that five new societies had been incorporated during the past year, viz., Carleton Place, Dryden, Newcastle, Streetsville and Westboro. Only one society, Vankleek Hill, had failed to make its return. The membership of the St. Thomas Society last year was 1,100, an increase of 392, Stratford 500, an increase of 313, St. Catharines 995, an increase of 270, Windsor 406, an increase of 172, Brantford 372, an increase of 170, Walkerville 197, an increase of 120, Berlin 285, an increase of 100, Hamilton 618, an increase of 79, Winchester 146, an increase of 66. Most of the superintendent's report was composed of reports from individual societies and showed the interesting work they had accomplished during the year.

While the convention was in session a magnificent vase of Wm. Turner chrysanthemums, grown by the Dale Estate, was brought in and placed on the table. It was a revelation to all present of the perfection to which these flowers can be grown.

A feature of the convention was the presence of Ontario's recently appointed premier, Hon. W. H. Hearst, who gave a brief address, as did also Hon. James Duff, and Hon. F. McDiarmid, Ontario's new minister of Public Works. Rev. Mr. Scott, of Perth, who was acquainted with Hon. Mr. Hearst when he was a young man, made a most pleasing speech setting forth his early acquaintance and impression of Ontario's new premier.

Letters of regret for their inability to be present were read from J. Horace McFarlane and R. B. Watrous, the president and secretary respectively of the American Civic Association.

EDUCATIONAL ADDRESSES

A feature of the convention as usual were a number of splendid addresses of an educational character. Mr. Dunbar, superintendent of the famous parks of the city of Rochester, gave an address and showed a large number of slides illustrating scenes in Rochester's city parks. In these parks are grown evergreens from all parts of the world. The speaker stated that he believes that they grow all the known varieties of crab apples. Views of Japanese crab apples in bloom and of Chinese magnolia planted down the centre of a city street were very fine. On what is now known as Lilac Sunday the parks are crowded by thousands of people.

Mr. James M. Bryson, of Moore Park, Toronto, gave a lengthy and splendid address, also illustrated by stereopticon views, on the subject, "The Best Varieties of Roses for Amateur Gardens." As there are eleven acres of roses in Moore Park, where some fifteen thousand roses are grown, an idea of Mr. Bryson's qualifications to deal with this subject may be gained. An extract from this address appears elsewhere in this issue. Further extracts will be published later.

Mrs. Ada L. Potts gave a valuable address on the subject, "Gardens for School Children," in which she advocated having the study of nature placed on the curriculum. Discussions of nature subjects could be conducted in connection with gardens.

(Continued on page 299)

Ontario Fruit Growers in Convention Discuss Problems

ONTARIO fruit growers are in favor of the suggestion made in the last issue of *The Canadian Horticulturist* that their chief product, the apple, should be generally recognized throughout the Dominion of Canada as the national dish of its people. At the fifty-fifth annual convention of the Ontario Fruit Growers' Association, held in Toronto, November 11th to 13th, President Robert Thompson, of St. Catharines, brought the matter before them in his annual address, when he pointed out that England had roast beef, Scotland oatmeal, and Ireland the potato. "We in Canada," said Mr. Thompson, "might well take the apple as our national dish, as in no other country does the apple flourish as it does in Canada." Later the President's suggestion was embodied in the following resolution:

"As the apple reaches the highest state of perfection in Canada; is both beautiful to look upon and very pleasing to the taste; is popular with both rich and poor; is one of the most health-giving and stimulating articles of diet; it is therefore the opinion and wish of this Association that the apple henceforth will be regarded as the national dish of Canada."

The resolution was adopted amidst applause. Who knows but that in later years this may be regarded as the most important act of the Fifty-fifth Annual Convention of the Ontario Fruit Growers' Association.

The discussions at the convention showed that all has not gone well with Ontario fruit men this past season. Severe frosts in the spring practically destroyed the peach crop. A general money stringency seriously interfered with the marketing of earlier fruits, and war conditions have now somewhat demoralized the apple market. But the fruit growers are not discouraged. They have adopted the national motto, "Business as Usual."

The past year has accentuated a situation that has been developing for many years—the difficulty of marketing the apple crop with economy and efficiency. Growers now realize that this rather than the production of fruit is their most difficult problem, and they have set themselves resolutely to solve it. Discussions of a business nature took first place in practically all sessions of the convention. Fruit Commissioner Johnson opened the discussion that held an important place in the proceedings of three days.

GREATER PRODUCTION ASSURED

"If we don't find some way to increase consumption," said Mr. Johnson, "we will soon have over-production. We have 25,000,000 fruit trees in Canada. In the Annapolis Valley not 50 per cent. of their trees are in bearing. New Brunswick is also planting. Quebec is coming in once more with McIntosh and Fameuse. Two-thirds of the orchards in British Columbia are under five years of age, and the other one-third are only beginning to bear."

The Commissioner was not pessimistic. He pointed to great possibilities of market extension right in our own cities. One-half of our urban population, he estimated, do not eat apples at all, and not one-quarter of the amount that should be consumed is now marketed. It was to bring the merits of the apple before city consumers that the Government conducted its advertising campaign this fall. The results were gratifying. Mr. Johnson stated that fully 30,000 inquiries had been received at Ottawa as a result of the campaign.

"More apples would be consumed were it not for the price," was his comment. He recommended the bulk car method of shipment adopted extensively for the first time this season. He contrasted the desirability of two methods of handling these bulk shipments by using as illustrations two cars shipped to Ottawa this fall. In the first instance the apples were purchased at twenty-five cents a barrel, loaded on the cars in bulk, carried one hundred and fifty miles to Ottawa, and sold at one dollar to hucksters. The dealer made forty cents profit on the shipment. The hucksters sold to consumers at two to three dollars a barrel. Hence the economy of this method of handling fruit did not redound largely to the benefit of the consumer.

In another instance the City Council of Ottawa interested themselves in the marketing problem. They bought the apples in Western Ontario, paying the fruit grower forty cents delivered at the car. The bottom of the car was protected with six inches of straw, the sides were padded, and the apples piled in to a depth of three feet. At Ottawa the apples were bagged at a total cost of seven cents, and delivered in the consumer's cellar at sixty-five cents a barrel. A single notice in the paper was sufficient to sell the whole car.

"In this case," said Mr. Johnson, "the producer got all he asked, and consumers had their apples at less than one-half what it usually cost them. Had more apples been available at this price, twice as many would have been used." There will always be a demand for good barrelled and boxed fruit. But for the marketing of inferior goods even in the best of seasons, Mr. Johnson recommended the bulk shipment.

MARKETING PROBLEMS

Prof. J. W. Crow, O.A.C., Guelph, carried on the discussion. He drew a sharp distinction between the responsibility of the grower and the consumer. Retail marketing by the producer he did not consider either practicable or desirable. "When the grower follows his apple to the wholesale market," said Prof. Crow, "from then on it is the consumer's problem." He attributed high retail prices, not to the immense profits that are being made by retail dealers, but to the multiplicity of fruit stands, each with a very small turnover. He saw very little hope of giving the consumer fruit as cheaply as he should have it until municipal governments recognized that fruit distribution was a subject for Government regulation and did something to curtail injurious competition among retail dealers.

The idea of growers advertising their products more extensively appealed to Prof. Crow. He believed that through seasonable advertising it would be possible to educate consumers to call for the different varieties in their season and not to limit their demand, as many do, to Snows and Spies. A more immediate duty of the grower, however, is to place on the market a product of higher uniform quality. No one operation, he contended, would contribute more to this end than thinning, and he gave figures estimating increased returns on one hundred barrels of fruit at twenty-three dollars and forty-nine cents, all as a result of thinning the fruit on the trees.

Marketing from a cooperative standpoint was dealt with by F. C. Hart of Toronto, who enunciated some of the principles which lead to success in cooperative dealing, such as a sufficient supply of capital, the establishment of a surplus fund for

permanent improvements and a real business manager. He scored some associations severely for their laxity in keeping accounts, and announced that his department was prepared to audit the books of any society that desired to take advantage of his offer.

Mr. G. E. McIntosh, of Forest, the association's transportation expert, embodied some of the general ideas laid down by Mr. Hart in one concrete suggestion. He believed that Ontario fruit growers should be organized, as are those of Nova Scotia, British Columbia, and the citrus growers of California. He suggested organizing local societies into district societies, a district covering one or more counties. The districts in turn would be organized in a central body, through which the main business of all the fruit growers of the province would be transacted. This, he believed, was in harmony with the modern spirit of centralized enterprise.

The "direct to the consumer" aspect of the marketing problem was handled by Mr. W. H. Bunting of St. Catharines, who told of his success in building a "direct to the consumer" trade through the medium of newspaper advertising. This method of marketing Mr. Bunting characterized as "a remunerative side line." He emphasized the fact that much of his fruit is still sold to the commission man and reaches the consumer through the medium of the retail dealer. In his belief the greater portion of Ontario's crop must continue to be so marketed for a long time to come. To fully round out the discussion on marketing, a retail grocer of Toronto, Mr. L. W. Clark, was given an opportunity of presenting the retailer's case. Mr. Clark apparently proved to the satisfaction of all that retailers work on a narrow margin. He took occasion to call attention to some of the abuses of the trade, such as partially filled berry boxes and the shipping of immature fruit. In his experience he has found that Canadian shippers were more addicted to these forms of dishonesty than were growers in the United States.

THE TRANSPORTATION PROBLEM

Unsatisfactory service by express companies has long been a source of irritation and of considerable loss to Ontario fruit growers, and the subject was again up for discussion at the convention. Member after member told of losses that had been sustained through rough handling, pilfering, and delayed deliveries. Suggestions for reform were embodied in a series of resolutions, the most important of which called for the extension of the powers of the Railway Commission to cover the regulation of all transportation agencies doing business in Canada. They all asked for the passage of Bill 85, now under consideration at Ottawa, the provisions of which have been given in a previous issue of *The Canadian Horticulturist*.

Other resolutions bore directly on the marketing problem. One expressed appreciation of the enterprise of Sir Geo. E. Foster in conducting the advertising campaign this year, and asking that the campaign be continued next year. Legislation was asked allowing the use of a box the same length and width as the standard apple box, but only five inches in depth, for use in the export trade. The convention again placed itself on record as favoring such additions to the staff of fruit inspectors as will make possible inspection of fruit upon shipment during the packing season, the inspectors to issue certificates



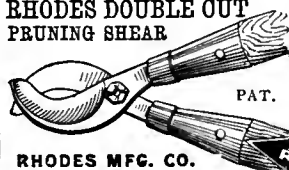
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stating the results of inspection so far as it has gone. The Federal Government, it was believed, might render assistance in the solving of the transportation problem as the Provincial Government has already done.

Educational addresses were this year placed somewhat in the background by the urgency of the market situation, but as usual they were of a high order. Prof. L. Caesar, Provincial Entomologist, as usual an appreciated speaker, dealt with the Cherry Fruit Fly, a pest first discovered by him in 1910, but now recognized as one of the most serious affecting the cherry. This address is published elsewhere in this issue.

As a result of his investigations, Mr. W. A. McCubbin, St. Catharines, attributed peach canker to definite fungus diseases, and not to borers, as was once so common. Extracts from this address also appear elsewhere in this issue.

General discussions were a source of much information. Prof. Crow strongly advised year-old sweet cherry trees for planting, emphasizing the superior value of Mazard stock. In selecting nursery stock of many of the plums and of sour cherries, he favored year-old trees, but with apples and pears he believed two-year-old stock will generally give better satisfaction. F. M. Clement, of the Jordan Harbor Experiment Station, reported results in the fall planting of cherries, pears, and plums. His remarks will also be published in full. A comparatively new phase of fruit growing was discussed by M. B. Davis, C.E.F., Ottawa, under the title "Fire Pots." In his work Mr. Davis found that an acre could be heated for one hour on a frosty night at one dollar sixty cents to two dollars fifty cents. If a crop were to be saved this expenditure would be well worth while.

Apple growing in the far eastern counties, where natural conditions are none too favorable, found its exponent in Mr. Harold Jones, of Maitland, Ont., whose remarks are published elsewhere in this issue.

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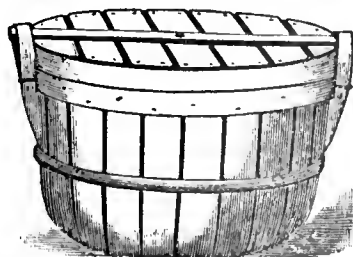
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The Bee-Keepers' Review

Is out on a hunt for new subscribers and has a special offer to make to those subscribing at the present time. The regular subscription price of *The Review* is \$1 a year. Our special offer is to give the last nine months of 1914 and all of 1915 at the regular annual price. The nine months of 1914 contain all the valuable papers read at the National Convention at St. Louis, Mo., last February, including one from Prof. Morley Pettit, and one from Prof. F. W. Sladen, of Canada, besides many from over the border. Twenty-one months for a dollar. A bargain worth considering. No extra charge for Canadian postage.

Address, with remittance, The Bee-Keepers' Review, Northstar, Michigan.

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A crackerjack of a Xmas present

Remember when you were a kid? The presents that were all shiny and bright, and that "worked!" Were'n't they the ones that you were proudest of?

Something for *your room*—something you could use *all year*—something like big people had in *their rooms*. The sensible presents appealed to you best when you were a *kid*. Think back a bit and see. Then think of Big Ben for those boys and girls.

Toys, of course, should never be displaced. It wouldn't be Christmas without them. But mix in *useful things*—things that develop *pride* and that make little people feel responsible. Give them presents to *live up to* and to *live up with*. Don't make the mistake

of thinking they don't feel the *compliment*.

Let one thing that meets the eye of your little boy and girl on Christmas Morning be that triple nickel-plated, jolly, handsome, pleasant looking, serviceable, and inspiring clock—*BIG BEN*. See if you don't hear them say: "Why! Isn't that a crackerjack? Is that for me to use myself?"

Big Ben is a crackerjack-of-a-Christmas-present to give to any friend. He's two presents in one, a dandy alarm to wake up with, a dandy clock to tell time *all day* by. He stands seven inches tall. He's got an inner vest of steel that insures him for life,—big, bold, black hands you can see at a glance in the dim morning light without ever having to get out of bed—large, comfy keys that almost wind themselves and a deep, jolly ring that calls just when you want, and either way you want, *five straight minutes or every other half minute for ten minutes* unless you flag him off.

Big Ben is sold by 23,000 watchmakers. His price is \$2.50 anywhere in the States. \$3.00 anywhere in Canada. If you can't find him at your dealer's, a money order mailed to *Westclox, La Salle, Illinois*, will send him anywhere you say, attractively boxed and express charges paid.

"Pre-cooling of Canadian Fruits" was dealt with by Edwin Smith, in charge of the Grimsby Cold Storage. F. M. Clement, who has now been in charge of the farm at Jordan Harbor for one year, told something of the work they are doing there, and extended a hearty invitation to all fruit growers to come and inspect the farm. Mr. Robert Thompson and several others present concurred in the statement that Mr. Clement had wrought a wonderful change on the farm. Of particular value to those planning to set out orchards in Eastern Ontario was Mr. W. T. Macoun's paper on "Yields of Varieties of Apples at Different Ages." Full reports of these discussions and papers will be given in future issues of *The Canadian Horticulturist*.

INCREASED MEMBERSHIP WANTED

Ways and means of increasing the membership of the association were discussed. At present, of the fifty-four fruit growers' associations of the province only seventeen are affiliated with the Ontario Fruit Growers' Association. Of the growers outside of the associations, only ninety-one are members of the central organization. The good work that the association might do is thus greatly curtailed. A committee appointed to consider the subject recommended that the director of each division be requested to take a census of the local organizations in his district and visit these associations urging them to affiliate.

Several members who have long been prominent in the membership of the association have passed away since the last annual meeting. Among these are Dr. Saunders, Mr. Linus Woolverton, and Alex. McNeil. The convention expressed its appreciation of the work of these men and grief at their loss. The appointment of Mr. D. Johnson as Fruit Commissioner was endorsed, and thanks tendered to Mr. J. A. Ruddick for his services in the past as head of the fruit branch. Sympathy was expressed for the secretary, Mr. P. W. Hodgetts, who had been ill for some weeks. The Hon. Mr. Duff, Minister of Agriculture, was thanked for his interest in the association, personally and financially. Government regulation for the business in Nursery Stock to prevent the operations of unscrupulous dealers was called for. Any one who has planted an orchard to find several years afterward that the trees were not true to name and of an inferior variety will appreciate the importance of this last resolution.

The various districts of the province were fully represented at this year's convention, but on the whole the attendance would not compare favorably with conventions of previous years. This falling off may be accounted for largely by the cancelling of the fruit show. Next year, however, if the growers have their way, they will hold the greatest fruit show in the history of the association. A special effort is to be made to increase the attendance at the convention of 1915.

DIRECTORS ELECTED

The directors for the following year were elected as follow: J. B. Smith, Mount-ain; C. W. Beaven, Prescott; F. S. Wall-bridge, Belleville; Elmer Lick, Oshawa; W. J. Bragg, Bowmanville; H. G. Foster, Burlington; R. H. Dewar, Fruitland; R. Thompson, St. Catharines; Geo. Schuy-ler, Simcoe; Dr. Grant, Thedford; C. W. Gurney, Paris; Kenneth Cameron, Lucknow, and W. J. Saunders, East Linton. An additional director, F. M. Clement, was elected to represent the Jordan Harbor Experimental Station. The directors elect their own officers at their first meeting.

Fruit Business from the Retailer's Standpoint*

D. W. Clark, Retail Grocer, Toronto, Ont.

THERE are people under the impression if a grocer buys an article for ninety-nine cents and sells it for a dollar he is making a profit of one per cent. Such is not at all the case. I have been in the grocery business in Toronto over thirty years, and from my own experience and the experiences of others in the trade, the expenses of a grocer reach from twelve to eighteen per cent. on the turnover. So that if a retailer sells a basket of fruit for one dollar, he must figure that from the time that basket entered his store until it was handed in at the door of the consumer, it cost him anywhere from twelve to eighteen cents. Suppose it cost him the average fifteen cents—you can see that if the first cost of the article was eighty-five cents and he sold it for one dollar, he is actually just breaking even and no net profit whatever has been made.

The overhead expenses of a retail grocer include many items. There are wages to be paid the manager or proprietor, and the selling staff; there is rent, or interest on investment, light, fuel, the upkeep of delivery horses and waggons, and drivers' wages; taxes, insurance, store equipment and fixtures; depreciation on everything; stationery, stamps, etc., bad debts which frequently necessitate the writing off of considerable money; and sometimes unforeseen occurrences, such as the death of a horse or the smashing of a delivery wagon in a runaway. Goods which we purchase and stock in our stores so as to have them convenient for the consuming public must each and all bear their share of these

*A paper read at the recent convention in Toronto of the Ontario Fruit Growers' Association.

inevitable overhead expenses. In the case of fruit and other perishable goods, there is always the additional expense of waste to be added, for no merchant, no matter how careful he may be, can gauge his purchases and sales correctly at all times.

RETAILERS PROMOTE CONSUMPTION

I think you will all agree with me that the consuming public would not buy as much fruit and vegetables if they had to get their supplies direct from the country. The attractive displays of the retailers of Toronto every season are responsible for the great majority of sales, and if there were no displays to tender suggestions to the people, and if the consumers were left upon their own initiative to write or wire to the country for supplies, there would be a large amount of stuff go abegging. I would just like to see the retailers of the country give up the sale of fruit and vegetables for one year, and allow the consuming public to send to the country for everything they wanted. You can depend upon it, there would be very little fruit consumed this year.

If, then, the retail grocer is a necessary link in the chain of fruit and vegetable marketing to secure the maximum turnover, the next question to decide is the cheapest and best way for fruit and vegetables to reach his store. You growers, who obtain the maximum benefit from your crops, appreciate the fact that the harvest you produce should all find its way into consumption, and at prices that will bring you a reasonable net profit. If you produce more than a market can be found for, you lose. If the prices you receive do not

The Fruitland Nurseries

are now prepared to book spring orders for all kinds of Fruit and Ornamental Trees, Shrubs and Vines at lowest prices. Send for price list.

G. M. HILL BOX 42 FRUITLAND, Ont.

Strawberries 50 varieties

Raspberries 13 varieties

10 varieties Seed Potatoes

FREE CATALOG

THE LAKEVIEW FRUIT FARM

H. L. McCONNELL & SON, PORT BURWELL, ONT.

DISSOLUTION OF PARTNERSHIP

NOTICE IS HEREBY GIVEN, that the partnership heretofore carried on by the "CHAS. E. HOPPER COMPANY," as dealers in beekeepers' supplies, etc., has been this day dissolved by mutual consent. All debts owing to the said partnership are to be paid to The Root-Canadian House, at 183 Wright Avenue, Toronto, Ont., and all claims against the said partnership are to be presented to the said Root-Canadian House, by whom the same may be settled.

DATED at Toronto this 20th day of November, 1914.

THE CHAS. E. HOPPER CO.

Witness,

JOHN A. PATERSON.

The business will be continued at 183 Wright Ave., Toronto, Ont., by The Root-Canadian House.



DISSTON Pruning Saws

A STYLE FOR EVERY REQUIREMENT

No. 10

Socket handle for attaching to pole. Adjustable blade. 14 inches centre to centre of holes.

No. 25

Flat steel frame, riveted sockets, swivel stretcher. Beech handle, varnished edges, two nickel-plated screws. Blued steel blade. 14 inches.

D-24

Narrow point crucible steel blade, copper handle with beechwood grip. 14 to 24 inches.

One-Man Cross-Cut

Made on the same principles as our Disston handsaws. Designed to withstand maximum "thrust" without buckling, and for easy rapid cutting.

Write for "Pruning Saw Booklet"

HENRY DISSTON & SONS, LTD.

2 FRASER AVENUE

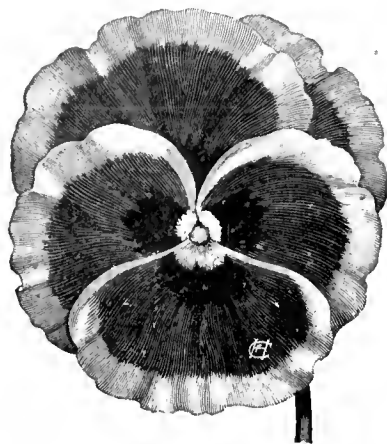
TORONTO, ONT.



One-Man Cross-Cut

D-24

DUPUY & FERGUSON'S CATALOGUE OF HIGH GRADE SEEDS FOR 1915



will be ready for distribution about the first of January: the handsomest, most practical and complete seed catalogue published in this country. It tells the plain truth about

D. & F.'s High Grade Seeds that Grow

The descriptions are accurate, absolutely correct and free from exaggeration and extravagant claims.

Write a post card for a **FREE COPY** to-day.

56 **FIRST PRIZES** were awarded at the Montreal Horticultural Exhibition, Sept., 1914, to Mr. F. S. Watson, on products grown from D. & F.'s seeds.

DUPUY & FERGUSON

38 Jacques Cartier Sq.
MONTREAL

pay you a net profit, you lose. Your aim is quite clear.

My opinion is that fruit can be bought to the best advantage by the retail dealer from the commission merchant. It seems to me to be the only fair way for you to market your goods. My reason is this: When the merchant buys from one party at a distance he has no choice in appearance and quality. The goods may be satisfactory to-day and to-morrow they may bring all kinds of complaints from consumers, and you must remember that we make good to our customers anything that is not right. Melons may arrive too ripe or too green; peaches may be off color, etc., and as we are the final distributors we get the blame. If we purchase goods we cannot conscientiously recommend, we must lose in the price.

METHODS COMPARED

But on the other hand, when goods are bought from the wholesale market when competition is keen, we have our choice from scores of growers. If a retailer has a market for only one kind of fruit, he can personally select what he wants from all the offerings on the open market. A merchant, too, soon gets to know the shippers who send in the most reliable fruit and vegetables, and at the commission house he has an opportunity of obtaining his daily supplies from one or another.

The dealer must also protect himself from the standpoint of price. Should he purchase direct from one shipper, he pays the one price. But on the commission market the prices are up to-day and down to-morrow, so that if the price a merchant has paid to his own shipper happens to be higher than the ruling commission market quotation—as it would frequently be—he must cut his retail price and lose his net profit. It is, therefore, much the safer method—despite the recommendations of many of the daily papers, and others, ignorant of the situation—and surely the most satisfactory method to buy our fruit and vegetables. Some of you probably will be able to point to instances to the contrary, but for the best interests of the larger section of the growers and retail dealers, the marketing system I have outlined must prove the generally accepted one.

FAULTS OF THE FRUIT GROWER

The majority of us like to be commended for the good things we do, but we are usually loathe to hear of those things that ought not to have been done. Nevertheless, let me recall a few errors of commission and errors of omission that the fruit we frequently receive in our stores point to. Sometimes, for instance, we receive boxes of berries a little better than half filled. Out of a crate of twenty-seven boxes it may require three or four boxes to fill the remainder in order that we can offer them to our customers without fear of complaint. Suppose a crate of twenty-seven boxes cost thirteen cents a box. That would mean a total of \$3.51. Suppose we were to sell the remaining twenty-three boxes that have been filled up at fifteen cents a box, or an advance of two cents—which is the usual margin—we would only receive \$3.45 altogether. That would mean a loss on the first cost without taking into consideration the cost of doing business, which is from twelve to eighteen per cent. There you have an example of an error of omission.

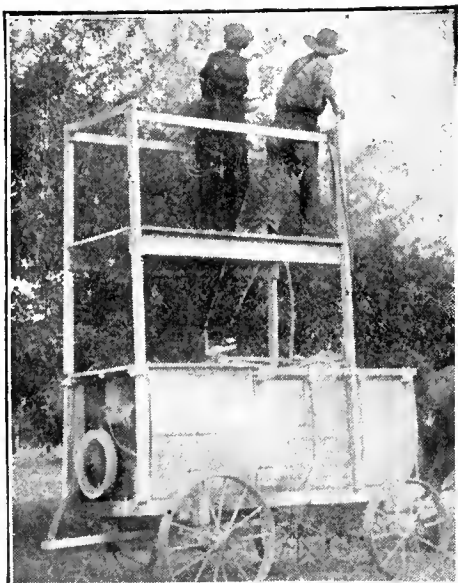
When we purchase berries that come from the United States, the boxes are jammed full. Of course you realize that what I have said about Canadian boxes does not apply to all cases, but it has occurred frequently, and that is why I have mentioned

YOU Have Many Uses for This Machine!

WE are frank in telling you that a **SPRAMOTOR**, rightly used, will earn its cost the first season, and pay you a handsome profit besides.

Our **SPRAMOTOR** is a very adaptable machine—one that will benefit you in many ways. It saves orchard trees and row crops with equal certainty, destroys weeds, kills rot, blight, canker, lice, beetles and all parasites.

It throws paint or whitewash on to buildings twenty times as quickly as by hand and does a better job. Used with disinfectant it protects horses and cattle from biting, tormenting flies and lice. A



Spramotor

"It isn't a **SPRAMOTOR** unless we make it"

reduces the percentage of loss in fruit over 80% as shown by Government tests in 19 different orchards. Used on potatoes, a **SPRAMOTOR** has increased a yield of almost nothing to 400 bushels an acre.

The **SPRAMOTOR** stands unequalled in the whole world as an effective spraying machine. It has won over 100 Gold Medals and First Awards against all comers. Twenty distinct patented improvements on the **SPRAMOTOR** that no other machine can have. Prices run from \$6 up to \$350—dozens of styles and sizes. Let us send you **FREE**, our valuable illustrated treatise on Crop Diseases. Postcard brings it quickly.

Spramotor Works
207 King St., LONDON, Can.



it here. The retail grocers are in a position to give the growers great assistance in the marketing of fruit if we receive it in good order and properly packed. The better condition it reaches us, the lower is the margin of profit we can afford to take, and the lower the price to the consumer, the more will there be consumed—and that is what you men are striving for.

From my own experience, I must say that a great deal of credit is due the Leamington fruit growers for the fair way in which they put up their goods. Most of the shippers there are dependable, and you can be certain that the retailers soon become acquainted with the good men, and endeavor to get their goods from them. Every man, of course, thinks his goods the best, just as every athlete thinks he has greater powers than his competitor. There are some shippers who mark their goods No. 1, whereas other producers would call them No. 2. Here we have an error of Commission. If the marketing of fruit is to be put upon a satisfactory basis, as a retailer I would think that more care should be taken in this respect. We often purchase goods supposed to be as the top row indicates, but when those underneath are investigated, we find an inferior quality which we cannot send out to our customers. All of this injures the fruit business in general, and is not good business on the part of the shipper. It tends to rob him of a good name he would otherwise possess. In retailing it is just the same. If we do not give satisfaction to our customers, somebody else will, and we lose the trade.

There are too many disturbing influences in the trade. Supposing a man goes out to the country to visit a friend, and brings home with him what fruit he wants. He usually gets it at a lower price than the retailer can buy in quantities—and he doesn't forget to tell us about it. We are frequently reminded by those who have just come in from the country how cheap apples are. Sometimes they tell us they can almost get them for carrying them away. They forget that we have high rents to pay, and wages, and everything else connected with the stocking, displaying and selling of apples, and they think they should get them from us as cheaply as they can occasionally obtain them in the country. It is up to the producer, if he wants to get good prices for what he grows, to help maintain prices and not to demoralize them for the retailer from whom he expects so much in the way of getting the goods into consumption.

Those of you who read some of our daily papers have seen the abuse we receive from Householders' Leagues about charging exorbitant prices. I assure you that competition is too keen in grocery staples for that. These people do not understand the methods or cost of doing business, and in their ignorance create all kinds of unjust prejudices against us. The service demanded by the public nowadays is one of the large factors in price advances.

I'm sure you will agree with me that the retailer is a necessity in the distribution of fruit and vegetables if the maximum is to be sold in a season. I believe in such conferences as these, and I hope that there will be more of them. They afford us an opportunity to obtain a better understanding of the difficulties with which each of us have to contend.

[Note.—On the conclusion of Mr. Clark's address, the fruit growers present were afforded an opportunity to ask him questions. The growers present appeared to be satisfied that Mr. Clark had made out a good case for the retailer.—Editor.]

Annual Rally of the Horticultural Societies of Ontario

(Continued from page 293)

owned by the children themselves.

[Correction.—After page 293 had gone to press it was noted that the preceding few remarks had been made by Mr. Hamilton, of Toronto, not by Mrs. Potts.—Editor]

Mrs. Potts, as she did last year, gave another inspiring address this year, this time on the subject "Home Gardens and the Homemakers." "Nature," she said, "is the old cure that will repair the dislocations due to the mechanical conditions of life." This was the central thought of her address, which was an earnest appeal to women to take a more direct interest in horticulture, to be homemakers both inside and out of the house as the woman only can make a home. "Horticulture," said Mrs. Potts, "broadens the interests of the woman in the home, affords a pleasant diversion from the regular housework, and is calming to the overwrought nerves of the mother." The speaker referred to the influence of a live interest in horticulture in making her own life more enjoyable and predicted similar happy results to all others who would, through horticultural study and practice, come closer in touch with Mother Nature.

Mr. E. T. Cook, of Toronto, in the course of an excellent address, stated that homes without a garden suffer in monetary value as in these days a garden is becoming a profitable adjunct of the home. While Canada is to-day largely a land of farms it will in time become a land of gardens. Mr. Cook advocated simple planting and plenty of flowers suited to the environment of the home. This address also will be dealt with more fully in a later issue.

"Town and City Backyard Development" was dealt with at length by Mr. W. S. Dinnick, of Toronto, who last summer offered \$1,000 in prizes in a contest conducted in Toronto, which proved a great success. Mr. Dinnick described the successful results that have attended the efforts of the National Cash Register Company, which at Dayton, Ohio, transformed a slum district into one of the show places of the city. In Baltimore, the appearance of much of the city has been transformed through the efforts of a committee, which conducted competitions for the best backyards, vacant lot gardens, window boxes, and other similar contests. The work of the Garden Club in Minneapolis was dealt with, as well as work conducted in Philadelphia, and last year's competition in Toronto.

Mr. Benjamin Hammond, of Beacon, N. Y., was to have spoken on "School Garden and Welfare Work," but was unable to be present.

An interesting report of the Experimental work conducted at the Dominion Experimental Farm, Ottawa, and the best flowers grown there, was given by Mr. W. T. Macoun, the Dominion Horticulturist. The aim of the Experimental Farm has been to learn by experiment and experience what are the best varieties of hardy ornamental trees, shrubs, and herbaceous plants, and the best ways of growing them. The introduction of many species suitable for the colder sections of Canada has been the result. Many kinds of annuals are grown each year and there are large collections of irises, phloxes, paeonies, cannas, galdioli, geraniums, tulips, narcissi and other kinds of perennial plants which are grown for the purpose of learning their relative merits. New greenhouses that have been erected give about 7,500 square feet of glass in which to experiment with tender plants. One member of the staff, Mr. F. E. Buck, de-

Protect Your Fruit

BY USING

**WARNER'S
APPLE BARREL PADS**

It costs LITTLE and PAYS BIG

Manufactured by

ROSSELL B. WARNER, INWOOD, ONT.

New COAL OIL Light

Beats Electric or Gasoline

10 Days Free Trial

Send No Money

BURNS
94%
AIR



Costs You Nothing

to try this wonderful new Aladdin kerosene (coal oil) mantle lamp 10 days right in your own home. You don't need to send us a cent in advance, and if you are not perfectly satisfied, you may return it at our expense.

Twice the Light on Half the Oil

Recent tests by noted scientists at 14 leading Universities, prove the Aladdin gives more than twice the light and burns less than half as much oil as the best round wick open flame lamps on the market. Thus the Aladdin will pay for itself many times over in oil saved, to say nothing of the increased quantity and quality of pure white light it produces. A style for every need.

Over Three Million

people now enjoy the light of the Aladdin and every mail brings hundreds of enthusiastic letters from satisfied users endorsing it as the most wonderful light they have ever seen. Such comments as "You have solved the problem of rural home lighting"; "I could not think of parting with my Aladdin"; "The grandest thing on earth"; "You could not buy it back at any price"; "Beats any light I have ever seen"; "A blessing to any household"; "It is the acme of perfection"; "Better than I ever dreamed possible"; "Makes my light look like a tallow dip"; etc., etc., pour into our office every day. **Good Housekeeping Institute**, New York, tested and approved the Aladdin.

We Will Give \$1000

to the person who shows us an oil lamp equal to the Aladdin (details of this Reward Offer given in our circular which will be sent you). Would we dare invite such comparison with all other lights if there were any doubt about the superiority of the Aladdin?

Get One FREE

We want one user in each locality to advertise and recommend the Aladdin. To that person we have a special introductory offer under which one lamp is given free. Just drop us a postal and we will send you full particulars about our great 10 Day Free Trial Offer, and tell you how you can get one free.

THE MANTLE LAMP COMPANY
411 Aladdin Building Montreal and Winnipeg, Can.
Largest Kerosene (Coal Oil) Mantle Lamp House in the World.

Men With Rigs Make Big Money

delivering Aladdin lamps. No previous experience necessary. One farmer who had never sold anything in his life made over \$500.00 in six weeks. Another says: "I disposed of 34 lamps out of 31 calls."

No Money Required We furnish capital to get started. Ask for our distributor's Easy-System-of-Delivery plan quick, before territory is taken.

WE PAY HIGHEST PRICES FOR RAW FURS

We receive more shipments of Raw Furs than any five houses in Canada

FREE

HALLAM'S TRAPPERS GUIDE French or English
HALLAM'S TRAPPERS SUPPLY CATALOG (Illustrated) and
HALLAM'S RAW FUR QUOTATIONS worth \$50.00 to any Trapper

WE SELL ANIMAL BAIT TRAPS GUNS &c. AT LOWEST PRICES

JOHN HALLAM LIMITED Write To-day—Address Desk 385 **TORONTO**

This Beautiful Tea Set of Bavarian China **FREE**



This beautiful Set contains 40 pieces. 1 dozen cups, dozen saucers, dozen plates, 2 cake plates, 1 cream jug

and a dreg bowl. The set is Bavarian China, nicely decorated and the shapes are the very latest.

A large order placed with a local wholesale house enables us to offer these sets to you in return for a very small amount of work on your part and without a cent's expense.

If you will send us 8 new yearly subscriptions to The Canadian Horticulturist at 60c. each, or 5 new two year subscriptions at \$1.00 each, we will send you one of these sets at once.

This is a wonderful opportunity for you to get a Tea Set **FREE**. Write us immediately.

THE HORTICULTURAL PUBLISHING CO.
PETERBORO, ONT. LTD.

votes his whole time to study and experiments with ornamental plants.

LAWN AND GARDEN COMPETITIONS

Prof. H. L. Hutt, formerly of the Guelph Agricultural College, in presenting the report of the committee on lawn and garden competitions, took advantage of the occasion to announce that he was no longer connected with the Agricultural College, his resignation having been asked for by the Minister of Agriculture, who had declined to give him a satisfactory reason for his action. Prof. Hutt stated that he had laid the matter before Premier Hearst. The committee in their report described the methods of conducting lawn and garden competitions that have been tried by different horticultural societies in the province, and gave helpful suggestions for the conduct of such work. Further mention of this work will be published later.

Mr. M. L. Lay, of Walkerton, gave a practical and interesting address on the "Culture of Sweet Peas." An extract from this address is published elsewhere in this issue and the balance of the address will be published later.

Mr. Bertrand H. Farr, of Wyomissing, Pa., one of the most successful growers of perennials in the United States, gave a lengthy address in which he dealt with succession of bloom and varieties of paeonies and perennials that have given him the best satisfaction. We expect to publish extracts from this address later.

THE APPLE OUR NATIONAL DISH

A suggestion contained in the president's address that the association should endorse the proposal to have the apple selected as the national dish of Canada was heartily endorsed by the convention in the form of a motion moved by Mr. W. T. Macoun, the Dominion Horticulturist, and seconded by H. B. Cowan, President of The Canadian Horticultural Association. The adoption of this report suggested the idea that steps might be taken also to select a national flower. Several different flowers were suggested and a resolution was carried authorizing the directors of the Association to consider the advisability of having the paeony selected as the national flower.

The directors were requested to make arrangements, if found practical, for conducting excursions of members of the local horticultural societies to the parks of Rochester, N.Y., and Ottawa.

The members approved of having the Association affiliate with the National Council of Women, and Mrs. R. L. Brierton was elected its representative to that Association.

Mr. T. D. Dockray, of Toronto, led in a helpful discussion of the best methods of conducting flower shows. He stated that they were useful for the purpose of stimulating an interest in horticulture and increasing the membership of societies. The arrangements should be left in the hands of a show committee.

Messrs. J. H. Bennett, Barrie, Ont., J. Cavers, Oakville, and Prof. H. Thompson, of Toronto University, were appointed a committee to act in conjunction with an already existing committee appointed by the Canadian Horticultural Association, to take steps to see that a National Plant Registry be established at as early a date as possible. It was suggested that the committee should correspond with the authorities of the Central Experimental Farm to ask that a qualified member of its staff be appointed to aid the committee in all ways possible.

Mr. F. E. Buck, of Ottawa, presented the report of the committee on Names of Varieties. The report this year dealt with an-

nual plants. The committee aims to have only one name used, the common English name. Where the botanical name is common it will be accepted in the case of such flowers as phlox. Further mention of this report will be given later.

It was decided to ask the Dominion Government to modify its regulations so as to make it possible for roses to be imported by parcels post.

The following officers were elected: President, J. H. Bennett, Barrie; first vice-president, G. W. Tebbs, Orangeville; second vice-president, Dr. F. E. Bennett, St. Thomas; treasurer, C. A. Hesson, St. Catharines; secretary and editor, J. Lockie Wilson, Toronto; honorary directors, W. J. Macoun, Ottawa; Prof. H. L. Hutt, Guelph; W. B. Burgoyne, St. Catharines; directors, R. B. Bowden, Hawkesbury; K. E. Kent, Kingston; Geo. Vickers, Barrie; T. D. Dockray, Toronto; Jas. Ogilvie, Hamilton; Mrs. Cottle, Clinton; K. W. Brooks, Brantford; J. H. McKay, Windsor; Dr. Bothwell, St. Thomas.

An Apple Consumption Campaign

R. M. Winslow, Victoria, B.C.

Taking advantage of the stimulus given to the apple industry by the advertising campaign of the Dominion Government, Calgary, Vancouver, and Victoria instituted "Apple Weeks"; Calgary's and Vancouver's ran from November 2nd to 7th, and Victoria's during the following week.

The British Columbia Markets Commissioner reported from Calgary that the Albertans rallied to the support of the luscious apple from British Columbia, recognizing that they got full value for their money. Prizes were offered for the best window display. In the schools, domestic science classes gave special attention to apple cooking, and the children had an opportunity to compete for prizes. The C.P.R. dining cars, hotels and restaurants offered their patrons menus of special apple dishes. The British Columbia Department of Agriculture donated \$250 towards the expenses of the campaign.

Vancouver took up the "Week" with enthusiasm, wholesalers and retailers combining in an effort to make the week the greatest boost the apple, the British Columbia apple in particular, has ever received. Prizes for windows most attractively dressed were offered, and as in Calgary all hotels put on special apple menus and newspapers filled their columns with matter eulogistic of King Apple. Every section of British Columbia exhibited at the show held all week at the Vancouver Industrial Bureau, which was enlivened by a choir of children singing apple and patriotic songs.

Victoria's apple days were of special benefit to the Island growers and consumers, and the project was keenly supported by the wholesale and retail trade. The British Columbia Fruit Growers' Association, recognizing the great benefit of these "Apple Weeks" to the industry at large, contributed \$250 towards the advertising expenses in Vancouver and \$100 in Victoria. The Okanagan United Growers contributed three cents a box on their sales for the campaign, and it is expected that the other growers will fall into line and do the same.

A bearing orchard makes annual demands upon the soil almost as heavy as a twenty-five bushel crop of wheat, not allowing anything for the yearly growth of wood.—E. E. Adams, Leamington, Ont.

RENNIES SEEDS

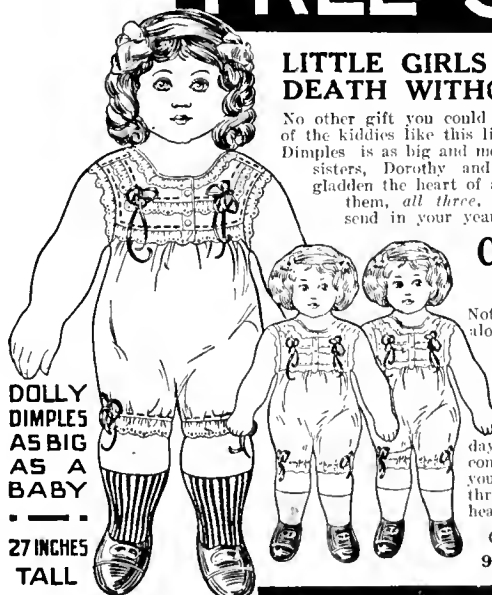
**PUREST-CLEANEST
MOST RELIABLE**

**FOR SALE AT BEST
DEALERS**

WRITE FOR CATALOGUE

TORONTO - MONTREAL
WINNIPEG - VANCOUVER.

FREE-3 Dollies



LITTLE GIRLS CAN LOVE THEM TO DEATH WITHOUT BREAKING THEM

No other gift you could think of will be taken into the hearts of the kiddies like this little family of dolls. Big, lovable Dolly Dimples is as big and most as pretty as a real baby. Her little sisters, Dorothy and Dainty—either one of them—would gladden the heart of any wee girl or boy. But you can get them, all three, absolutely FREE by deciding now to send in your yearly subscription to

Canadian Home Journal The Quality Magazine

Not a cent extra to get these glorious dolls along with the favorite home paper, full from cover to cover with the things women want to read. Even if your subscription has not yet expired, you may order now while this exceptional offer is open. Send the regular price—just one dollar, today. Have the Canadian Home Journal come to your home every month. And if you send now, you will get FREE these three dolls, beautifully lithographed on heavy cloth, ready to sew up and stuff.

CANADIAN HOME JOURNAL
99 West Richmond St., Toronto.

HIGHEST TYPE SPRAYING MACHINE IN THE WORLD

Pretty big claim that, but fully justified by the facts. At the Canadian Government Spraying Contest, Grimsby, Ont., the **SPRAMOTOR** took first prize with ease from eleven competitors. That puts **SPRAMOTORS** in the lead among all makes.

The outfit illustrated here is our gasoline-power model, the best machine we make, and therefore "the highest type spraying machine in the world." We make **SPRAMOTORS** in many styles and sizes, for the largest farm and for the smallest, at prices from \$6 up to \$350—everyone the best outfit for the money. We are sole makers of the



Spramotor

"It isn't a **SPRAMOTOR** unless we made it"

and have been making nothing else for the past twenty years. Over 20 patents covering features you can get in no other machine but the **SPRAMOTOR**. We have won over 100 Gold Medals and First Awards in all parts of the world. The next best machine isn't good enough for you.

FREE Write us a short letter, giving some idea of your spraying needs, and we will send you free, a copy of our valuable illustrated work on Crop Diseases, also full details of a **SPRAMOTOR** that will best fill your requirements.

SPRAMOTOR WORKS

206 King St., LONDON, Can.

Johnny-on-the-Spot

"Johnny-on-the-Spot," on skids or on truck, will take care of all your chores—pumping, separating cream, pulping, churning, washing, etc.

Stop wasting your time and energy in useless drudgery. Let "Johnny-on-the-Spot" do it—one of the famous Gilson "Goes Like Sixty" Line—a high quality engine at a low price. WRITE FOR CATALOGUE AND FULL PARTICULARS. ALL SIZES.

Gilson Manufacturing Co.
Limited
10 York St., Guelph, Ontario

\$47.50




XMAS PRICES FOR FRUIT AND VEGETABLES

At this Christmas season our good facilities will enable us to get you top prices for your Fruit, Vegetables and General Produce. We have a large connection on the Toronto market as well as branch warehouses at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. Competent men are in charge at each point. Our branches form a ready outlet in time of congestion on the Toronto market. We never have to sacrifice your interests.



REFERENCES

Canadian Bank of Commerce (Market Branch) and Commercial Agencies.

Send for Shipping Stamp

H. PETERS

88 Front St. E., TORONTO, Ont.

Apple Advertising Campaign Commended*

D. Johnson, Dominion Fruit Commissioner, Ottawa

I N watching this season's operation, it has been driven home to me more and more that for the great bulk of apples there is too great an expense from the orchard to the consumer. I do not for one moment wish to criticize the reasonable middleman or insinuate that there is not a place for well packed apples in boxes and barrels. Well packed fruit cannot be too much encouraged and will receive all possible assistance from the Dominion Department of Agriculture, but Canada is not consuming the amount of apples that she should. Not one-quarter of the fruit is being consumed in our cities that would be consumed were it not for the expense of placing it in the hands of the consumer.

The fact that so many inquiries were received is also a good indication that the public are giving attention to apples. In Washington I was told by a large association that by the expenditure of ten cents a box in advertising on a certain number of carloads of apples they increased the net price twenty-five cents a box, or in other words, an expenditure of ten cents brought them in thirty-five cents.

We know what has been accomplished by advertising in western land booms which have attracted attention from all parts of the world, filling the country with an industrious population and increasing land values two or three hundred per cent. We also know what advertising has done in

increasing the consumption of bananas and oranges in Canada.

It is an alarming fact that while apples have not increased in consumption, yet the imports of these fruits have increased in value from \$1,891,539 in 1903 to \$6,525,518 in 1913, or an increase of 325 per cent. in the last 10 years.

In view of these facts, I think the time has arrived for the Canadian apple growers to proclaim to the world through the medium of advertising, the value of their product. And, while we would not advocate the adoption of all the methods by which advertising has increased the price of certain commodities, yet the principle of advertising is right, and could be followed with equal advantage to producer and consumer; and

I believe that if the various associations had this year set apart five

or ten cents a barrel for advertising purposes they would have brought their names prominently before the public and have secured for themselves a good reward for the expenditure. In addition to the home market, there are also the great fields of Europe to be exploited, South America, Australia, and South Africa, in which a vigorous commercial and advertising campaign would bring an enormous increase in the consumption of our fruit.

I am heartily in favor of the widespread movement for bringing into action up-to-date publicity methods for increasing the sale and consumption of the apple. Wide-awake business has long passed the stage when a doubt existed as to the value of advertising, but fruit growers, as a class, have somewhat lagged behind the van of progress. Growers and shippers everywhere are beginning to wake up to the error of their ways, and to join hands for the long pull, the strong pull together, that should result in making the excellencies of the King of Fruits known throughout the length and breadth of the continent—J. Forsyth Smith, British Columbia Market Commissioner, Victoria, B. C.

Fruit spurs are easily recognized by their short scraggy appearance on the branches. Leave them intact.

"I believe the Canadian apple to be the finest in the world."—The Geo. E. Farrow

"Canadian apples are all right—firm, juicy, well-colored, good keepers."—Lester Branson

Buy them by the Barrel or the Box!

You can't have too many at Hallowe'en

"Sub Apple Night" comes but once a year. But Apple Day is every day. This year the finest of Canada's crops is going to market in Canada. Every year your share. Serve them when you feel like it. They are delicious and so are the trees that bear them. Keep a few in the cellar—the best kind of apples before hand and every year will give you a good one.

Make Sure It Is Canadian—Economical, Delicious

200 delicious recipes and full instructions on how to keep apples all winter, contained in this book, "Book of Apple Delights". Send for a copy. You will not regret it. It is a book of apple recipes and instructions. It is a book of apple recipes and instructions. It is a book of apple recipes and instructions.

GET THIS BOOK FREE

DOMINION GOVERNMENT
Department of Trade and Commerce, Apple Division
OTTAWA

At the Top of your Thanksgiving Grocery List

For the healthful, rich and delicious Canadian apples, we should truly be thankful. All of the harvest is in the hands of the grower, and the consumer is at the mercy of the market.

How many Canadians are there that share in the fact that the world is full of apples? The fact is that the world is full of apples. The fact is that the world is full of apples. The fact is that the world is full of apples.

FREE BOOK OF APPLE DELIGHTS

Send for a copy of this book. It is a book of apple recipes and instructions. It is a book of apple recipes and instructions. It is a book of apple recipes and instructions.

DOMINION GOVERNMENT
Department of Trade and Commerce
Ottawa

Sample Advertisements Used by the Dominion Government in its Recent Apple Advertising Campaign.

The well-to-do people will always buy apples in barrels and boxes, but the working people cannot afford to do this. They may buy a barrel or a box, but they will not be able to eat the quantity that they desire. I believe that 50 per cent. of the population of our cities are scarcely touching apples at all, and those who are using them are not eating half as many as they should.

The Government undertook an advertising campaign this fall to try and attract the attention of the masses to apples. This campaign was carried on for seven weeks, and at an expenditure of something over \$12,000. The result has been that something like 36,000 letters of inquiry have been received asking where apples can be got, and how they should be served. Of course, it is impossible for the Government to advertise any particular grade of apples or any particular price. If the growers themselves had reinforced the campaign by advertisements as to the price and quality of apples which they could offer, it would have assisted tremendously in the marketing of the crop. As it is, we are advised by wholesale and retail dealers all over Canada that the demand was greatly increased by the efforts put forth in that way.

*Extract from an address delivered at the recent annual convention in Toronto of the Ontario Fruit Growers' Association.

Advantages of Cooperative Marketing

A. E. Adams, Secretary, United Fruit Companies, Ltd., Berwick, N.S.

COOPERATIVE MARKETING is the only method whereby the shipment of the produce of the farm can be so regulated as to not overcrowd certain markets and leave other markets bare.

It is the only method whereby our apples can be placed in right quantities on the markets to realize the highest prices.

It is the only method whereby new markets can be developed to the profit of the grower instead of the operator or speculator.

It is the only method whereby the grower can have his apples marketed at a fair cost.

It is the only method whereby the grower can get right to the actual wholesale dealer in Europe.

It is the only method whereby the grower can get into direct touch with the really big buyers, the buyers who will take whole cargoes.

It is the only method whereby large combines and organizations can be effectually dealt with.

Now let me demonstrate how cooperative marketing is carried out:

In the first place statistics are gathered giving the management complete information as to the crop in all apple producing countries. European conditions are taken into consideration and a decision is arrived at as to whether the year is one in which to prosecute sales or whether better results can be obtained in other ways.

When apple shipping starts, complete lists of all varieties on hand are gathered from all companies. Conditions are closely watched. Our European office keeps us advised daily as to the pulse of all markets.

We are kept regularly advised of what apples are going forward from all North American ports and to what markets they are going. We are kept informed regularly what the holdings are on this side of the Atlantic, and what they are at each market on the other side.

We know therefore that say next week there will be sent to Liverpool from New York, Boston, Portland, Montreal and Halifax 50,000 barrels, and from the same ports there will be sent to London, 40,000 barrels. Glasgow is getting 20,000; Hamburg, 20,000; Bristol, 4,000. We marshal these facts and take into consideration our cable advices. We note carefully how these various markets are clearing up, we keep in mind the size and condition of the English, French and German crops and refer to our charts showing how these markets have been affected in years gone by, with shipments of varying sizes. We review the situation in the markets on this side of the Atlantic and finally decide to adopt a certain course. Whatever course we adopt is adopted on a basis of scientific calculations, it is not mere guess work.

Having a large quantity of apples under our control we can withhold or forward to various markets just whatever quantity these markets can carry. If we see that a certain market is going to be overcrowded we can relieve it and every shipper benefits.

We have a second safeguard. Say, for instance, that contrary to all indications, a market takes a wrong turn after our apples have gone forward, we are not by any means at the end of our resources. We have our European representative who is in constant

The Modern Greenhouse

(MADE IN CANADA)

The last year or two has seen a radical change in greenhouse construction.

It has been found that a single large house is more efficient in every way than two or more small ones. It is more economical to heat and to take care of, gives more sun to the benches, and is cheaper to build.

The houses we have just constructed for J. H. Dunlop at Richmond Hill are excellent examples of this new type.

We also manufacture a complete line of heating and ventilating apparatus and install it if desired.

For further information regarding greenhouses of any type, or any accessories, address

Glass Garden Builders, Ltd.
201 Church St., TORONTO

For the Land's Sake

Use the best Manure
and get

GOOD CROPS

For Nurseries, Fruit Growers
and Gardeners.

Sure Growth Compost

Makes poor land fertile and keeps fertile
land most productive.

Supplied by

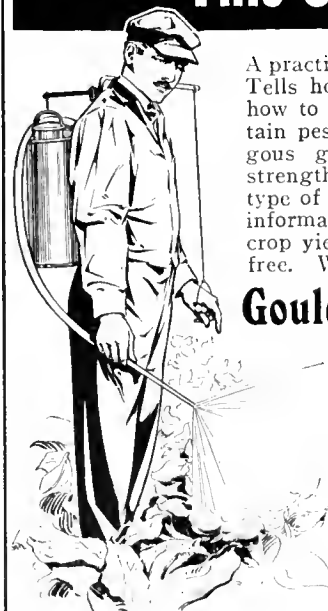
S. W. Marchment

133 Victoria St., TORONTO

Telephones: Main 2841; Residence, Park 951

Say you saw this ad. in The Canadian Horticulturist

This Spray Book Free!



A practical book of working instructions. Tells how and when to spray. Explains how to select the right mixtures for certain pests, how to treat insects and fungous growths, how to prepare, what strength to use, how to apply, which type of sprayer. Forty pages of the very information you want to increase your crop yield 25 to 75 per cent. We send it free. Write to-day.

Goulds Reliable Sprayers

are more durable, more practical than cheap outfits which only last a season or two. That is why 400,000 orchardists and gardeners have chosen Gould's Sprayers. They never clog, are easily cleaned, and spray most uniformly. Before you decide on any sprayer, find out about Gould's improved methods. It will save you money and trouble.

Send for the book to-day. It tells you about every type of sprayer, from small hand outfits to big power pumps. (19)

THE GOULDS MFG. CO.

Largest Manufacturers of
Pumps for Every Purpose

17 W. Fall Street, Seneca Falls, N. Y.





Peerless STEAM COOKER

Cook your Christmas Dinner in a Peerless Cooker. Send name and address for catalogue and Free Dandy Household Outfit Offer. Direct from factory to your home prepaid. Agents Wanted.

Peerless Cooker & Specialty Co. - Berlin, Ont.

ORDER YOUR NURSERY STOCK

direct from the grower and save middlemen's profits. Write at once for our free descriptive catalogue of fruit trees, small fruits, evergreens, roses etc. Address

J. H. McCOMBS NURSERIES

R. R. No. 2

WELLAND, ONT.



FOR PROFIT

Plant our Top Notch FRUIT, SHADE and ORNAMENTAL TREES, EVERGREENS, SHRUBS, ROSES, VINES, BUSHES. Ask for Price List (No Agents) at Central Nurseries. Special low price on APPLE TREES, root in lots. *Canadian Grown.* A. G. HULL & SONS, ST. CATHARINES, ONT.

Useful New Invention

**Enables Anyone to Play
Piano or Organ With-
out Lessons**

A Detroit musician has invented a wonderful new system which enables any person or a little child to learn to play the piano or organ in one evening. Even though you know absolutely nothing about music or have never touched a piano or organ you can now learn to play in an hour or two. People who do not know one note from another are able to play their favorite music with this method without any assistance whatever from anyone.

This new system, which is called the Numeral Method, is sold in Canada by the Numeral Method Music Co. of Canada, and as they are desirous of at once making it known in every locality, they are making the following special free trial and half-price offer to our readers.

You are not asked to send any money until you have tried and are satisfied with the new method. The Numeral Company is willing to send it to you on one week's free trial, and you will not have to pay them one cent unless you desire to keep it. There are no express charges to be paid, as everything will be sent by mail. Simply write a letter or post card to the Numeral Method Music Co. of Canada, 246R Curry Hall, Windsor, Ontario, saying "Please send me the Numeral Method on seven days' free trial." If you are satisfied after trying it, the Method and fifty different pieces of sheet music will cost you only \$5, although the regular price of these is \$10. You should not delay writing, as the Numeral Company will not continue this special half-price offer indefinitely. Later on the Method and fifty pieces of music will be sold at the regular price.

touch, not only with us but also with every market.

For instance, London unexpectedly slumps, we have a large parcel almost there. These are all consigned to our own office, which immediately takes steps to tranship that fruit or such of it as will stand reshipment, to other markets. Hull, Copenhagen, Hamburg, Paris, so on, where prices may be better. Such action saved us large sums last year, and will always do so when such circumstances arise.

Last year over and over again, we saved the situation on certain markets by withholding our apples from certain boats, knowing that had we put them on, the market would have gone to pieces, and would have been a long while recovering.

Two striking instances occurred within one month: We were advised that if a certain boat carried more than 20,000 barrels the market would decline badly, and our estimates of future shipments indicated the same thing. We, therefore, withdrew our apples, and the boat sailed with 18,000 barrels. Had ours gone forward she would have carried 26,000, which would have unquestionably have put the market in a pretty bad state. Instead of doing so we brought in a C.P.R. boat, which sailed seven days later, arriving after the market was cleaned up and bare, and giving us the market entirely to ourselves, with splendid results. Through our action the ordinary shipper was saved and the market was kept steady for the benefit of not only ourselves but for all. Without cooperative centralization markets never could be regulated in this way and thousands of dollars would be sacrificed.

The South African Market for Fruit

The following report by the United States Consul at Johannesburg, Transvaal, on the market in that district for American apples and pears, applies also to the market conditions for the same varieties of fruit of Canadian produce.

Particular requirements of buyers in this consular district, as well as in other parts of South Africa, are Washington and Oregon apples, these being preferred largely on account of the system of packing best suiting market conditions. Medium-sized red apples, such as Jonathans, Rome Beauties, Banana apples, Kinesaps and Spitzenbergs, particularly the last two, are preferred to other varieties.

Apples should be wrapped in paper separately and packed with bulge. Boxes containing one hundred and twenty-five to two hundred, each box marked with contents, sell best. The most advantageous time to dispatch apples for this market is in September, October and November, September shipments being specially desirable, as October, November and December are the best selling months. A leading fruit importer of this city states that American exporters of apples should make it a point not to ship to South Africa after the first week in November. The season starts here with a rush, and if goods arrive after the months above stated they frequently do not realize half of the cost of freight. In fact, goods which cost two dollars and sixty cents a box have had to be disposed of at twenty-five cents a box owing to arrival after the close of the apple season. Apples arriving here after December come in competition with all of the local fruits, such as peaches, pears, apricots and other fruits locally grown, and for this reason are very little in demand.

Imported apples are not allowed to be sold in the general market house of Johannesburg in competition with locally grown

Will You Help The Hospital for Sick Children, the Great Provincial Charity? ❖❖

Dear Mr. Editor:—

Thanks for the privilege of appealing through your columns on behalf of the Hospital for Sick Children. The Hospital takes care of sick and deformed children, not only in Toronto, but in the Province, outside of the city.

This coming year, of all the years in the Hospital's history, has a more serious outlook, as regards funds for maintenance, than any year that has passed its calendar.

So many calls are being made on the purses of the generous people of Toronto and Ontario, to help the soldiers of the Empire, that as I make my daily rounds through the wards of the Hospital, and see the suffering children in our cots and beds, the thought strikes me as to whether the people will as of old, with all the demands made upon them, answer our appeal and help to maintain the institution that is fighting in the never-ending battle with disease and death, in its endeavor to save the stricken little ones in the child-life of Ontario.

Last year there were 394 in-patients from 210 places outside of Toronto, and in the past twenty years there have been 7,000 from places in the Province other than Toronto.

It costs us \$2.34 per patient per day for maintenance. The municipalities pay for patients \$1 per patient per day; the Government allows 20 cents per patient per day; so, deducting \$1.20 from \$2.34, it leaves the Hospital with \$1.14 to pay out of subscriptions it receives from the people of Toronto and the Province. The shortage last year ran to \$18,000.

Since 1880 about 1,000 cases of club feet, bow legs and knock knees have been treated, and of these 900 had perfect correction. Nearly all these were from different parts of the Province outside of the city of Toronto.

Remember that every year is a war year with the Hospital; every day is a day of battle; every minute the Hospital needs money, not for its own sake, but for the children's sake. The Hospital is the battle-ground where the Armies of Life have grappled with the Hosts of Death, and the life or death of thousands of little children is the issue that is settled in that war. Will you let the Hospital be driven from the field of its battle to save the lives of little children for the lack of money you can give and never miss?

Every dollar may prove itself a dreadnought in the battle against death, a flagship in the fleet that fights for the lives of little children.

Remember that the door of the Hospital's mercy is the door of hope, and your dollar, kind reader, may be the key that opens the door for somebody's child.

Will you send a dollar, or more if you can, to Douglas Davidson, Secretary-Treasurer, or

J. ROSS ROBERTSON,
Chairman of the Board of Trustees,
Toronto.

fruit, the market house being controlled by the municipality; the fruit must be disposed of by the importers to dealers by direct sale. Locally grown apples are most plentiful in market during January, February and March; hence the advantage of the imported fruit being shipped in time to arrive here before the South African fruit is marketed.

Under no consideration is it advisable to send apples or pears to shipping ports except in refrigerator cars. There is a good refrigerator service from Cape Town and other South African ports to Johannesburg for fruit shipments, but it is regarded as essential to have the fruit landed at Cape Town, the first port of shipment to the interior points, as, owing to the hot weather prevailing at the East Coast ports, fruit is liable to deteriorate very quickly.

If American firms ship the right class of goods in accordance with these directions and at the time mentioned, importers state that they can be sure of getting better results in this country than in almost any other foreign market. At least twenty-eight thousand boxes of imported apples found a market in Johannesburg last season, the majority of these being imported from Australia.

Pears are usually required in one-half boxes, these having proved to be the most successful sellers. The varieties mostly in demand are Winter-Nellis, Gloutmorseau and Howells. The usual terms granted to purchasers are thirty days.

Of all the Australian states, New South Wales and Tasmania only are enforcing legislation with respect to the size of cases in which imported and locally grown fruit is to be sold. While an Act has been passed in Queensland, the regulations have not yet been proclaimed, hence Canadian apples packed in the standard Canadian case can, so far as the 1914 season is concerned, be shipped to that state without restriction. In Victoria, South Australia and Western Australia no state laws have yet been enacted regulating the size of cases in which apples or other fruit are to be sold. As Sydney is the terminal port of the Canadian-Australasian steamers, it is obvious that New South Wales is the principal market in Australia for Canadian apples landed during the months of October to December each year. Representations were made to the Department of Agriculture of New South Wales that the Canadian apple case, packed with a crown on the top side of the case, contained more fruit than it is, in the ordinary Australian packing, possible to place in the New South Wales case, and request was made for the suspension of the regulations in so far as they affected Canadian exports until the season of 1915. The reply has been to the effect that the Fruit Cases Act specifically provides that when fruit is sold in a case within New South Wales it shall be of a size, measurement, and capacity specified in the regulations, and, as the Canadian standard apple case does not conform with the regulations, the sale of fruit in such a case cannot legally be permitted.

The difference between the two standard cases is as follows:

Canadian apple case...10x11x20 ins. inside New South Wales apple

case...10x11½x20 ins. inside

The New South Wales cases vary in size, but the popular case (as above) has a capacity of not less than one Imperial bushel, and its cubic contents are 2,225 inches, or 25 cubic inches larger than the Canadian. As the New South Wales Act came into force on July 1, 1914, it will be necessary for British Columbia exporters of apples and pears for sale in New South Wales to ship fruit in cases of the prescribed sizes.

PINK BEAUTY GLADIOLI

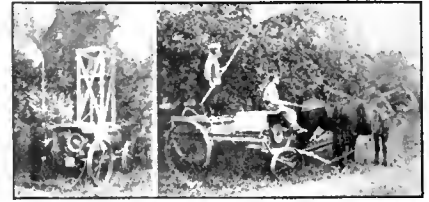
is the earliest of all. It is a long time till Gladioli bloom outside. You can shorten the time by planting Pink Beauty. It is not in the America class, but it has the "Award of Merit," Haarlem, 1909, "Award of Merit," Amsterdam, 1910, "First Class Certificate," Scottish Horticultural Association, Edinburgh, 1910, "First Class Certificate," Royal Caledonian Hort. Society, 1910, "Certificate," National Gladioli Society, London, 1912.

Price \$1.00 per 100 Express Collect.

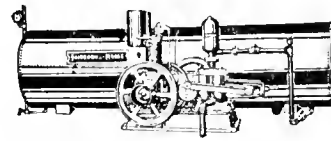
In November advertisement "Hulst" should be "Baron Hulst."

H. P. VAN WAGNER, R.R. No. 5, HAMILTON, Ont.

TWO SURE MORTGAGE LIFTERS



We have others Catalog Free
"FRIEND" MFG. CO. GASPORT, N. Y.



A Fairbanks-Morse Water System can be quickly and easily installed on any farm.

It will furnish you with an abundance of running water in the house, stable, creamery or wherever wanted. At the same time it affords you ample protection from fire.

Many styles—hand or power operated. Write for Booklet "Fairbanks-Morse Water Systems."

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The Canadian Fairbanks-Morse Co., Limited

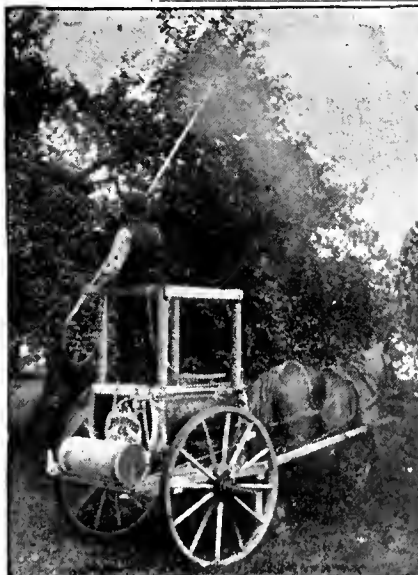
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Canada's Departmental House for Mechanical Goods



A CROP-SAVER AND MONEY-MAKER

That's what every SPRAMOTOR is to its owner. The outfit shown here is only one of many styles and sizes. It will do all kinds of spraying, whether trees, row crops, potatoes or weed killing.

The horse does all the work and you simply direct the spray. As many as eight nozzles may be used, and you get 150 lbs. pressure. With this moderate-price outfit, the largest trees can be properly sprayed. We are sole makers of the

Spramotor

"It isn't a SPRAMOTOR unless we make it"

and have concentrated on spraying outfits only, for the past 20 years. We make SPRAMOTORS from \$6 up to \$750. to operate by hand, horse or gasoline power.

The SPRAMOTOR won Canadian Government Spraying Contest at Grimsby, Ont., against eleven other makes. It wins every year in field and orchard against all other makes. Whether you buy a SPRAMOTOR or not, you are entitled to a copy of our valuable treatise on Crop Diseases, fully illustrated, absolutely free. Tells how to spray, what to spray and when, giving facts, figures and photos.

Write us to-day and get your copy by return mail. If you will state briefly your spraying needs, we will send details of a SPRAMOTOR that will fit your requirements exactly.

Spramotor Works, 205 King St., London, Can.

FOR SALE AND WANTED

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 30 cents, strictly cash in advance.

ALL KINDS OF FARMS—Fruit farms a specialty.
—W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS.—Before buying it will pay you to consult me. I make a specialty of fruit and grain farms.—Melvin Gayman & Co., St. Catharines.

ASK DAWSON. He knows.
IF YOU WANT to sell a farm consult me.
IF YOU WANT to buy a farm consult me.
I HAVE some of the best Fruit, Stock, Grain and Dairy Farms on my list at right prices.
H. W. Dawson, Ninety Colborne St., Toronto.

A QUANTITY OF HONEY WANTED—Montgomery Bros., Merchants, Deoraine, Man.

BEEKEEPERS—New invention for feeding bees in cellar. Price complete at \$1.00. Does away with feeding sugar on top of racks.—J. E. Thompson, Kagawong, Ont.

FREE FOR SIX MONTHS—MY SPECIAL OFFER to introduce my magazine, "Investing for Profit." It is worth \$10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the Real earning power of money, and shows how anyone, no matter how poor, can acquire riches. Investing for Profit is the only progressive financial journal published. It shows how \$100 grows to \$2,200. Write now and I'll send it six months free. H. L. Barber, 405-20 W. Jackson Blvd., Chicago.

SANDER & SONS ST. ALBANS, ENGLAND

ORCHID GROWERS. The Finest Stock in the World.
Catalogue on application



FLOWER POTS

Hanging Baskets and Fern Pans
FOR THE FALL TRADE

We make the "Standard" Pot, the best Pot in the world—uniform, best of clay, well burned, in every respect superior to all others.

All our pots have rim on shoulder, thus allowing them to be placed together perfectly and preventing breakage in shipping and handling.

Place your Fall Order NOW.

A complete line and large stock of all sizes kept on hand to ensure prompt shipment.

Send for NEW CATALOG and PRICE LIST

The Foster Pottery Co.
HAMILTON - ONTARIO
Main Street West

A Packing Demonstrator

Owing to the increased demand for boxed apples, more particularly in the western market, and on account of the inability of most eastern growers to pack boxes with sufficient skill to render them attractive, it was considered expedient by the Dominion Government to appoint an apple packing demonstrator. This appointment was made by Mr. J. A. Ruddick, Dairy and Cold Storage Commissioner, under whose direction the work of the Fruit Division was at that time carried on. The position was filled by Mr. P. J. Carey, who had been in the employ of the Dairy and Cold Storage Branch for several years as Chief Fruit Inspector.

Since then Mr. Carey's services have been much in demand, and he has found ample scope among the growers of Ontario and Eastern Canada for his ability. Applications for Mr. Carey's services, made to Mr. D. Johnson, Fruit Commissioner, Ottawa, will receive prompt attention.

Great skill is required in the packing of fruit in boxes. There are many growers in the east who have never packed fruit in any other package than the barrel, and to these the art of box packing is particularly difficult. Mr. Carey has done much to raise the standard of boxed apples in Ontario, and has also given demonstrations in Quebec and the Maritime Provinces, with the result that many of the more progressive growers in eastern Canada are now fairly expert packers.

In addition to demonstrations at exhibitions and similar meetings, Mr. Carey has visited many packing gangs in the orchards of Ontario, particularly, and in this way has been able to give first hand assistance to many whom he could not reach in any other way. Much instruction work of this nature has been done and as the quality of boxed apples shipped from Ontario is increasing every year to meet the growing demands, there is every likelihood that demonstration work in apple packing will continue to effect excellent results.

It is a mistake to think that men capable of running a large business, like a cooperative fruit growers' association, successfully are plentiful. They are scarce. It is a mis-

take to underpay them. They should be given a remuneration that satisfies them, and their work will be better. If their work is not satisfactory they should be dismissed but if it is satisfactory there should be no haggling over remuneration.—D. Johnson, Canadian Fruit Commissioner.

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalog free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

FRUIT MACHINERY CO. INGERSOLL, ONT.

Manufacturers of Fruit Sprayers

and a complete line of

Apple Evaporating Machinery

Our complete **POWER SYSTEMS** for evaporating, when installed by our experienced millwrights are the most practical, sanitary and labor saving to be found anywhere. Our prices and terms always reasonable.

Write for Illustrated Catalogue

BARTLETT PRUNING TOOLS



are designed on scientific principles, made of the highest grade materials and sold on their merits.

We make a complete line, including our **JOINTED TREE TRIMMER**, and will be glad to send catalogue and booklet on pruning upon request.

No. 18, Pruning Saw
Price \$1.75

No. 777, Two Hand Pruner
26-in. Ash Handles, \$2.00

Your dealer can supply you. If he does not, mail money order to us and we will ship prepaid.



No. 18 BARTLETT MFG. CO. No. 777
4 Boydell Building DETROIT, Michigan

GREENHOUSES

OF "THE WOOD ETERNAL"

LOUISIANA RED CYPRESS

DURABILITY AND STRENGTH

GREENHOUSE SASH & BARS

Plans and Estimates upon request

BATTS LIMITED

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